Interim Report of The Working Group on Financial Markets

Submitted to
The President of the United States

May 1988

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For sale by the Superintendent of Documents, U. S. Government Printing Office
Washington, D. C. 20402

213-632 0 - 88 - 1

<u>The Working Group on Financial Markets</u>

George D. Gould, Chairman
Under Secretary for Finance
Department of the Treasury

Wendy Gramm, Chairman
Commodity Futures Trading Commission

Alan Greenspan, Chairman
Board of Governors of the Federal
Reserve System

David S. Ruder, Chairman
Securities and Exchange Commission

May 16, 1988

The Honorable Ronald W. Reagan
The President of the United States
Washington, D.C.

Dear Mr. President:

We respectfully submit to you an Interim Report of the Presidential Working Group on Financial Markets, created pursuant to your Executive Order dated March 18, 1988.

For the past sixty days, we have reviewed and consulted together on the numerous recommendations made in the wake of last October's market decline. The Working Group has viewed its primary mission as focusing on specific actions that would substantially lessen systemic dangers to the U.S. financial system.

We are pleased to report that the Working Group has reached agreement and is making recommendations on a number of critical issues, including:

- agreement on coordinated circuit breakers to allow for a cooling-off period during times of high market volatility;

- conclusions and recommendations on the credit, clearing, and payments systems to ensure the necessary coordination within and between markets and to avoid systems gridlock;

- agreement that current minimum margin requirements provide an adequate level of protection to the financial system, although they do not cover all possible price movements, and that prudential margins appropriate for carrying an individual stock should be significantly higher than those for a stock index futures contract; and

- agreement on contingency planning, including the continuation of the Working Group, to facilitate coordination and consultation in the event of future market disturbances.

The collective actions recommended to you in our interim report are consistent with your mandate to us to enhance the integrity, efficiency, orderliness, and competitiveness of our Nation's financial markets and to maintain the confidence of investors, both large and small. In addition, our report recognizes and commends a number of significant actions taken by private market participants, self-regulatory organizations, and the regulatory agencies.

Sincerely,

George D. Gould, Chairman
Under Secretary for Finance
Department of the Treasury

Wendy Gramm

Wendy Gramm, Chairman
Commodity Futures Trading
Commission

Alan Greenspan, Chairman
Board of Governors of the Federal
Reserve System

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Commission

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Of the
Working Group on Financial Markets**

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INTERIM REPORT OF THE WORKING GROUP ON FINANCIAL MARKETS

I. INTRODUCTION AND SUMMARY

On March 18, 1988, the Working Group on Financial Markets was established by Executive Order to provide a coordinating framework for consideration, resolution, recommendation, and action on the complex issues raised by the market break in October of 1987. The Working Group was charged with developing effective mechanisms to enhance investor confidence, to protect the quality and fairness of markets for all participants, and to preserve the continued orderliness, integrity, competitiveness, and efficiency of our nation's financial markets. This is an interim report on our progress, actions, and recommendations.

From the beginning, the Working Group has had the benefit of a number of useful studies, notably the Report of the Presidential Task Force on Market Mechanisms (Brady Report) and separate studies by the Securities and Exchange Commission (SEC), Commodity Futures Trading Commission (CFTC), General Accounting Office (GAO), and others.

The Working Group reached early agreement on a number of important premises for our deliberations:

- The existence of large debt and equity portfolios held by institutions and the increased level of principal activities by investment firms have led to increased demand for portfolio hedging strategies and market liquidity.

- It is unrealistic (and perhaps counterproductive) to try to undo the changes in financial markets or market strategies brought about by improvements in telecommunications and computer technology.

- The role of fundamental economic forces should be emphasized when evaluating the October decline. Stock prices prior to the collapse had reached levels that seemed to be in excess of those justified by real earnings potential and reasonable discount factors. The inevitable reassessment of economic fundamentals by market investors was an important part of the selling pressure and price decline in October.

- The size and speed of the decline initiated by fundamental reevaluation of equity values was exacerbated on October 19 by a number of factors:

  -- volume overwhelmed trade processing capacity;

-- many participants pulled back from the markets because of fear and shock -- and because of uncertainties and concerns over (i) the accuracy and timeliness of information, (ii) counter-party solvency, (iii) credit availability, and (iv) de facto, ad hoc market closures or other market disruptions.

-- the financial system came under great stress in the credit, clearing, and settlement area.

- The Working Group agrees with the Brady Report conclusion that the stock, options, and futures markets are closely linked.

- The priority goals of the Working Group, therefore, have been to address the major uncertainties and to focus on reductions in possible systemic risk. In this respect, the Working Group followed the agenda established by the Brady Report, which also assigned first priority to the systemic risks identified during the market break.

As a result, the Working Group was able to concentrate its initial efforts on developing the most important system protections, in close consultation with self-regulatory organizations and market participants. The Working Group's conclusions and recommendations, more fully described in the body of the Report and its appendices, are as follows:

1. A "circuit-breaker" mechanism should be put in place that operates in a coordinated fashion across all markets, using pre-established limits broad enough to be tripped only on rare occasions, but which are sufficient to support the ability of payment and credit systems to keep pace with extraordinarily large market declines.

2. A significant number of important initiatives should be implemented in a timely fashion to improve further the operation of the credit, clearing, and settlement system -- beyond the notable and valuable changes the markets have made already. Although these initiatives are complex and technical, they would result in highly significant improvements in the vital linkages within the credit markets.

3. Current minimum margins for stocks, stock index futures, and options provide an adequate level of protection to the financial system. Prudential

maintenance margin percentages required for carrying an individual stock should be significantly higher than the percentage margin required for a futures contract on a stock index.

4. Contingency planning, including the continuation of the Working Group, is an important, ongoing responsibility that the Working Group members are implementing.

5. Capital adequacy is being addressed in material ways by the markets and should continue to be reviewed and improved whenever necessary.

6. Markets already are making -- and should continue to make -- significant efforts to enhance the operational capacity of trade-processing systems and to improve the fairness and quality of order executions for all investors, large or small.

7. The Working Group should continue to function as a coordinating and consulting mechanism for intermarket issues.

The Working Group can continue to be effective by monitoring the progress of its recommendations, by serving as a consultative and coordinating forum, and by expediting resolution of the remaining issues. The Working Group also believes that the structural weaknesses exposed by the October break can be overcome through cooperative efforts of the relevant government agencies, self-regulatory bodies, market participants, and the Congress.

II. CONTINUING COORDINATION

The Working Group believes that its continuation, in its existing configuration, is an excellent way to continue the process of addressing intermarket issues. Much has been accomplished in a short time frame, but work on a number of issues has not been completed. The Brady Task Force and others have recommended that some additional regulatory mechanism be established to resolve these continuing issues. Recognizing this concern for coordination, the Working Group believes that cooperative efforts under the existing regulatory structure will be more effective and less disruptive than more formal, additional legislated structure.

The Working Group believes that private market solutions, where feasible, are preferable to legislation because the private sector is closer to the problems and can address them in a more flexible manner. The Working Group has established a cooperative framework in which regulators, self-regulatory organizations (SROs), and market participants can work together to resolve intermarket issues.

The Working Group already has made progress on the issues deemed most critical to the market's smooth functioning and investor confidence. Equally important, it has created a process for (i) further interagency cooperation on intermarket issues such as clearing and settlement and contingency planning, (ii) monitoring implementation of its recommendations, and (iii) resolving the remaining issues -- and that process is working.

Continuation of the Working Group would be consistent with the spirit and intent of the intermarket coordination bills introduced by Senators Proxmire and Leahy. Both bills are designed to achieve coordinated resolution of intermarket issues by the appropriate agencies. That is precisely what the Working Group is doing, while avoiding the divisive and difficult questions of legal authority, structure, and independence presented by the current bills. The Working Group believes its efforts are succeeding and should be allowed to continue.

There are a number of additional intermarket issues that have been identified that the Working Group believes deserve attention. These issues, as well as continued work on the conclusions and recommendations already reached, will be addressed and progress on them reported in the months ahead.

III. COORDINATED TRADING HALTS AND REOPENINGS

The Working Group recommends coordinated trading halts and reopenings for large, rapid market declines that threaten to create panic conditions. In broad outline the Working Group recommends that all U.S. markets for equity and equity-related products -- stocks, individual stock options, and stock index options and futures -- halt trading for one hour if the Dow Jones Industrial Average (DJIA) declines 250 points from its previous day's closing level. The Working Group also recommends that the New York Stock Exchange (NYSE) use reopening procedures, similar to those used on so-called Expiration Fridays, designed to enhance the information made public about market conditions. Under the Working Group's recommendations, a second closing, this time for two hours, and reopening would occur if the DJIA declines 400 points below its previous day's closing level. The recommendations are detailed in Appendix A.

In designing these procedures, the Working Group has focused on market events that are so dramatic as to trigger _ad hoc_ and destabilizing market closings. This was manifest during the market break through systems breakdowns, reduced liquidity, and concerns over trading because of fears of counter-party and even clearing corporation failure. The Working Group recognizes that trading disruptions are undesirable. Thus, its proposal is designed to substitute planned for unplanned, _ad hoc_ trading halts without increasing the overall frequency of such disruptions. The Working Group's recommendation also recognizes the need for reopening procedures designed to limit the duration of the halt while providing for information dissemination to permit consideration of buy or sell decisions during periods of stress.

Members of the Working Group have consulted with the SROs, as well as with knowledgeable industry participants, about the design of these procedures. The Working Group believes that its recommendations can be implemented most effectively and expeditiously by SRO-initiated rule changes, with appropriate notice, comment, and agency review.

IV. MARGIN REQUIREMENTS

The Working Group considered the appropriate levels of "prudential" margins for stocks, stock index futures and options, defined as the maintenance margin levels needed to protect broker-dealers, futures commission merchants, and clearing corporations from investor and trader defaults on their margin obligations. Based upon the past price movements of stocks and stock indexes, the Working Group calculated the likelihood that prices would move to a point where various margin levels would not satisfy prudential concerns. _See_ Appendix B.

On the basis of these statistical measures, the Working Group concludes as follows. First, current minimum margin requirements provide an adequate level of protection to the financial system, although they do not cover all possible price movements. Because margin levels sufficient to provide protection against all possible price movements would impose unacceptable costs to market participants and the liquidity and efficiency of markets, the Working Group agreed that means other than margins to protect against extreme price movements should be considered. In this connection, the Working Group recognized that other mechanisms are in place that address the risk of large price movements relative to margins, such as capital requirements, clearing-fund guarantee deposits, and intra-day variation margin payments. Moreover, the Working Group's

recommendations on a circuit-breaker mechanism and credit, clearing, and settlement improvements should add significant protections against financial system risks from extreme price movements.

Second, the prudential maintenance margin percentages required for carrying an individual stock should be significantly higher than the percentage margin required for a futures contract on a stock index. This conclusion follows from the facts that stock indexes have a smaller percentage price variability than do individual stocks and the payment period for margins in the futures market is shorter than the period for stocks. The extent to which stock margins should exceed those for futures depends not only on measured volatilities and stated grace periods, but also on (i) actual margin settlement and position sell-out practices, (ii) portfolio strategies, such as the diversification of stock portfolios and the combination of stock, futures, and options positions, and (iii) the application of margin exemptions.

These conclusions concerning minimum margins relate only to minimum levels of margin set by regulatory or self-regulatory organizations. The Working Group notes that financial intermediaries typically require an amount in excess of these minimums for less credit-worthy customers and those with concentrated positions. Furthermore, capital requirements of firms and clearinghouse guarantee funds further enhance the stability of the securities and futures clearance and settlement systems.

The Working Group was not able to agree on whether or not it is appropriate or effective to raise margins above prudential levels in an attempt to reduce leverage or dampen volatility. Chairman Ruder believes that certain futures-related trading strategies have resulted in a dramatic increase in the size and velocity of institutional trading which, in turn, has resulted in substantially increased price volatility. For this reason, Chairman Ruder believes that, at least as an interim measure, margins on futures and options should be increased, in order to increase investor confidence, decrease derivative market speculative activity, and reduce the illusion that the derivative markets provide sufficient liquidity to allow investors and traders to liquidate quickly large portions of their entire portfolios. Chairman Gramm, the Treasury, and Chairman Greenspan, on the other hand, do not believe that the evidence supports the conclusion that higher margins will reduce volatility. Moreover, higher margins raise transaction costs and could have a negative effect on market liquidity and efficiency, possibly increasing volatility, and risking the movement of futures trading into off-shore markets.

The members of the Working Group disagreed about the appropriate scope and form of federal oversight of margins.

Chairman Gramm believes, based on the historical record, the different function and practices of futures margins, and the interest of individual firms and clearinghouses in protecting their capital, that the current approach to futures margins -- set by SROs, with emergency authority at the CFTC -- is entirely appropriate. Chairman Gramm also believes that it may be reasonable to have different regimes for equities since such cash market investments can involve purchases on credit and, in many cases, have lengthy settlement periods.

Chairman Greenspan and the Treasury believe that, while the primary responsibility for setting margins in all markets should be with the SROs, which have the superior expertise and economic stake to perform this role most effectively, there should be authority for each SRO's regulator to disapprove margin rule changes. There is sufficient possibility that at some point SROs might establish margins that were inconsistent enough to present market problems or set them at levels that might present potential costs to other parties that regulatory approval should be established in all markets. Chairman Greenspan and the Treasury do not feel that there is sufficient justification for adding any further levels or mechanisms for federal oversight beyond the primary regulator.

Chairman Ruder agrees with Chairman Greenspan and the Treasury on the need for regulatory rule disapproval authority, but feels that it is important to add a mechanism (i) by which any unresolved disputes that might arise between the SEC and the CFTC over margin levels established by their respective SROs and not disapproved by the relevant regulator would be settled by decision of the Federal Reserve, and (ii) by which the Federal Reserve would have residual authority to adjust margins taking into account leverage and investor protection concerns.

V. <u>CLEARING AND SETTLEMENT RECOMMENDATIONS</u>

The Working Group reviewed existing audit, clearing, and payments systems to identify and set priorities for actions that could be taken to reduce uncertainty, increase coordination, assure confidence in the integrity of such systems, and facilitate their smooth operation in volatile markets. In undertaking its review, the Working Group also interviewed major market participants, including large commercial and investment banks, exchanges, and clearing organizations. (The views of these market participants are summarized in Appendix C.)

Based on these interviews and on its own analysis, the Working Group endorses the view that the coordinated functioning of these systems is integral to the proper functioning of the financial markets as a whole and is pleased to report that significant progress has been made. In this connection, and as more fully set forth in Appendix D, the Working Group recommends the following agenda of additional measures to achieve the goal of more perfectly coordinated systems.

First, it is necessary that parties to the clearing and settlement process have a clear, consistent understanding of their obligations and those of other parties and that all parties make arrangements to have the financial capacity and the information necessary to assure timely compliance with those obligations. To this end, the Working Group recommends a number of incremental actions, which generally can be undertaken by federal regulators within the scope of their existing authority. (See Appendix D, Parts I and II.)

The Working Group believes that the system refinements based on these actions, a number of which are already underway, will go a long way toward coordinating the clearing and settlement process, can be undertaken in the short term without legislation, and should be undertaken without delay.

Second, the Working Group believes that the securities, futures, and banking industries should explore and pursue initiatives to ease potential cash flow stress by reducing the size of payment obligations. Experience during October 1987 indicates that large intra- and intermarket payments could add strain to the financial system during periods of volatility. As a result, the Working Group believes that ways to reduce such cash flows must be explored. The Working Group believes that this effort can be accomplished by immediate incremental actions that would facilitate evaluation of the necessity for, and the relative costs and benefits of, more profound structural changes to securities and derivative markets clearing and settlement systems. One potential method for reducing cash flows is cross-margining. Coupled with futures-style margining for options, this method may have particular promise and should be tested. Other approaches to netting obligations also should be pursued, including netting member settlements at clearing banks. In the near term, the Working Group recommends efforts to set up pilot programs. In the longer term, the Working Group believes that the securities and futures markets should explore the costs and benefits of a wider range of initiatives, including shortened settlements in the cash market that, if implemented on a coordinated basis with expanded linkages with the derivative markets, could reduce system risks and payments.

In summary, the Working Group recommends specific actions in the following areas:

(1) clarification of the obligations of participants in the clearing and settlement process;

(2) facilitation of timely payments;

(3) exploration of methods to reduce cash flows and simplify settlement systems; and

(4) refinement of relevant legal frameworks.

1. Clarification of the obligations of participants in the clearing and settlement process. The Presidential Task Force on Market Mechanisms identified events in October 1987 that apparently caused some market participants to question previous assumptions concerning the set of obligations of the various parties to the clearing and settlement process. The Working Group believes that uncertainty concerning these rights and obligations may not only diminish overall confidence in such processes, but also could lead to unilateral actions that are inconsistent with such obligations and that could adversely impact the willingness or ability of other market participants to satisfy their own obligations.

CONSEQUENTLY, THE WORKING GROUP RECOMMENDS THAT EFFORTS BE MADE TO CLARIFY AND CONFIRM THE RIGHTS AND DUTIES OF PARTIES TO THE CLEARING AND SETTLEMENT PROCESS. (See Appendix D, Part I.)

2. Facilitation of timely payments. Increased clarity of clearing and settlement obligations should be accompanied by efforts to ensure the capacity of those who are obligated to make or finance such payments to do so on a timely basis. The Working Group has identified several features of existing clearing and settlement systems relevant to payment capacity that can be enhanced to facilitate the timely satisfaction of payment obligations.

CONSEQUENTLY, THE WORKING GROUP ADVOCATES MEASURES TO ENHANCE THE CAPACITY OF EXISTING SYSTEMS TO ASSURE TIMELY FLOWS OF FUNDS INCLUDING:

-- Reviewing facilities to support payments;

- Augmenting the ability of clearing organizations to satisfy the obligations of defaulting market participants;

- Consider increasing Fedwire availability in highly volatile markets;

- Coordinating settlement processes across markets; and

- Increasing the availability of timely information to participants in the settlement process concerning payment obligations and cash flows. (See Appendix D, Part II.)

3. Exploration of methods to reduce cash flows and simplify settlement systems. The Working Group reviewed a number of potential means of modifying existing clearing and settlement systems to reduce the necessity for cash payments on an intra-market and intermarket basis. Such measures may require material structural changes and may affect legal relationships that reflect the distinctive functions of and regulatory protections applicable to the affected financial markets and thus raise substantial legal, policy, and administrative issues. The Working Group believes that these issues have not been explored sufficiently to warrant a determination as to whether to recommend full-scale implementation of these measures at this time. Nonetheless, the Working Group does recommend a cross-margining pilot program for non-customer accounts.

THE WORKING GROUP ALSO RECOMMENDS THAT SEVERAL SPECIFIC INITIATIVES BE EXPLORED TO DETERMINE THE DESIRABILITY AND FEASIBILITY OF VARIOUS APPROACHES TOWARD MORE EXTENSIVE MODIFICATIONS OF EXISTING CLEARING AND SETTLEMENT ARRANGEMENTS TO REDUCE CASH TRANSFERS, SIMPLIFY SETTLEMENT SYSTEMS, AND UNIFY CLEARING, INCLUDING:

- Futures style margining for options;

- Netting of cash flows on a contractual basis;

- Shortening the five-day settlement process for securities transactions; and

- Integrated clearing. (See Appendix D, Part III.)

4. <u>Refinement of relevant legal frameworks</u>. The Working Group, recognizing the very complex legal and federal issues involved, is also proposing that consideration be given to harmonization of transfer, delivery, and pledge requirements for options and uncertificated securities at the federal level. Further, the Working Group recommends that bankruptcy provisions relevant to securities and commodity brokers be reviewed to assure appropriate coordinated bankruptcy protection of such market participants. (See Appendix D, Part IV.)

VI. CONTINGENCY PLANNING

The Working Group believes that the purpose of contingency planning is to ensure that regulatory agencies and the self-regulatory organizations have in place systems that will allow them to identify emerging problems quickly and to react appropriately in the event of a market crisis. In an important sense, the Working Group recommendations for implementing circuit breakers, improving information flows, clarifying credit arrangements, and strengthening the clearing and settlement process can be viewed as a key part of contingency planning; by improving the market system's ability to withstand and react to shocks, these measures will enhance the system's first line of defense.

Going beyond this, the Working Group has given high priority to enhancing channels of communication among staffs of the respective regulatory agencies. The first step in this process has been to improve each agency's awareness of the existing information flows available from routine surveillance systems and to identity more clearly the existing regulatory mechanisms available to each agency to act in crisis situations. Further steps include the distribution of a contact list of names and telephone numbers of key officials at the regulatory agencies and the securities and futures exchanges. Similar efforts to improve communications and share information among the exchanges and their respective clearing organizations are being implemented by the SRO's. In particular, the securities and futures exchanges have developed a hot-line capability that allows simultaneous communication between all relevant markets. Moreover, the clearing organizations are working on procedures for sharing information both on a routine basis and during periods of market stress.

In addition, staffs of the four agencies are working jointly to improve information sharing across the agencies, with particular emphasis on a framework for coordinated monitoring of exposures and developments at major market participants. This is expected to incorporate a framework for identifying their

activities in each of the various markets, for monitoring intra-company financial interrelationships, and for assessing the extent of credit and funding interrelationships among such participants. It also will include coordinated efforts to encourage further improvements in the scope and quality of information available to such market participants, and hence to the regulators, from their internal exposure control systems. It is expected that this will enhance prospects for coordinated actions by the authorities and SRO's to protect the integrity of markets and clearing systems in extreme situations.

As with all of these issues, the Working Group recognizes that there are international dimensions to policy coordination. In this regard, steps are being taken by the various agencies to strengthen existing contacts with their counterpart authorities in other major market centers to improve further this aspect of market surveillance.

Beyond such efforts, contingency planning does not lend itself to pre-determined responses. Our financial markets have experienced various difficulties in the past, and each has raised different concerns and required a different response by regulators and market participants. Recognizing this, the Working Group believes that contingency planning must provide a flexible framework for addressing problems in a way which does not create unreasonable expectations of government intervention in a crisis. Continuation of the Working Group could enhance this flexibility by providing a forum for informed discussion and resolution of problems as they are identified.

VII. SUMMARY OF ACTIONS TAKEN ON CAPITAL ADEQUACY AND SYSTEMS CAPACITY ENHANCEMENT

Market participants, SROs, and regulatory agencies have taken or are planning a number of significant actions to enhance capital and improve automated systems -- two of the issues the Working Group and others have identified as critical to the financial integrity and smooth functioning of the markets. This section summarizes developments regarding: (A) specialist capital; (B) broker-dealer capital; (C) financial integrity in the futures markets; and (D) systems capacity. A more complete listing of actions taken is found in Appendix E. The Working Group will continue to monitor developments in these areas to ensure that needed improvements are made.

A. Specialist Capital

Because of the unique responsibility of specialists to maintain fair and orderly markets, it is important that specialists have sufficient capital during periods of high volume

and market turmoil. A specialist's ability to take the other side of a transaction when no one else is willing to do so depends on liquidity. During the October break some specialists on the NYSE and the American Stock Exchange (Amex) reached the limits of their buying power or encountered serious solvency concerns. This contributed to the market's difficulties and to problems faced by investors seeking to execute orders.

During the October break the NYSE required specialists to have minimum capital of the greater of $100,000 or a percentage of the value of shares of the stock assigned to them. The last time the NYSE changed its specialists' capital requirements was in 1977. Since then, of course, specialists' exposure has risen with the bull market and increased volume and volatility.

The President of the NYSE and the Brady Task Force have suggested that no amount of capital could enable a specialist in effect to stand in front of a stampeding market. The SEC's Staff Report, The October 1987 Market Break (February 1988), concurs, pointing out that it is unlikely that increased levels of specialist capital could have retarded to any degree the market decline of October 19 and 20. The SEC also stated that it is unrealistic to expect any one group of market participants to have or commit sufficient capital to retard extraordinary selling pressures. Nevertheless, the SEC Staff Report concluded that minimum specialist capital requirements imposed by the exchanges do not reflect the actual capital needed to maintain fair and orderly markets in securities with different trading characteristics. Accordingly, the SEC has urged the exchanges to consider revising the minimum financial requirements imposed on specialists to reflect more closely the requirements of today's markets.

The Working Group is concerned that past requirements for specialist capital may not be sufficient. The SEC and securities SROs are best suited to resolve these issues because they are closest to the problem. Indeed, they already have made substantial progress to bolster the capital of specialists:

- The SEC has recently approved a proposed rule change by the NYSE to raise the minimum dollar amount for specialists' capital to $1 million from $100,000 and to increase the measure based upon the trading unit position to three times its current level. (For example, the current 5,000 share position requirement for common stock has been increased to 15,000 shares.)

- The NYSE has increased its monitoring of both specialists' capital and positions by requiring that such information be filed with the NYSE by 9:00 a.m. daily.

- In an effort to attract more capital, the NYSE has revised its Rule 98 to suspend a prohibition on securities underwriting firms acquiring specialists. The proposed rule change was approved by the SEC on a temporary, emergency basis. A proposed rule change to make this modification permanent has been filed with the SEC.

The Amex and regional exchanges also have taken or are considering actions to enhance specialists' capital and the exchanges' surveillance of specialists' financial condition (as described more fully in the appendix).

The Working Group encourages the SEC and its constituent self-regulatory bodies to continue to review these efforts and to enhance specialists' ability to continue their function during volatile market conditions whenever necessary.

B. <u>Broker-Dealer Capital</u>

In addition to specialists' capital, the Working Group considered the capital adequacy of options firms and firms conducting a public business and/or trading for their own accounts.

The SEC's report found that, although the largest upstairs firms suffered substantial losses as a result of the October break, none fell below the Commission's net capital early warning levels. Of the approximately 6700 upstairs firms, about 60 were at some time in violation of the net capital rule. Of that number, only three carried customer accounts and only one of those had to be liquidated under the Securities Investor Protection Act.

The SEC's report also found that some options market makers experienced substantial losses, which created severe liquidity problems at some of their clearing firms.

The SEC concluded that, in light of the increased volatility in the market, it would reexamine the minimum net capital required of certain types of broker-dealers as well as the level and structure of haircuts for equity securities and futures. In addition, the Commission plans to review financial activities conducted in affiliates of broker-dealers to determine whether these financial activities create undue risk exposure for the

broker-dealers and the financial markets generally. The Commission also will examine regulatory requirements regarding the amount of equity an options market maker should have in its account and the amount of market maker business a clearing firm should carry without additional resources.

The securities clearing houses also are making significant progress in this area:

- The Options Clearing Corporation (OCC) has undertaken a special study of its systems that will include eight broad areas for review, including those identified in the SEC Staff Report. The objective of the OCC study is to identify any structural weaknesses or areas that can be improved.

- OCC has been considering increasing its net capital requirements and will analyze the costs and benefits of such increases as part of its study.

The Working Group encourages the SEC, SROs, and clearing houses to continue this process of evaluating the sufficiency of broker-dealer capital and finding ways to improve existing practices and requirements.

C. <u>Capital Adequacy in the Futures Markets</u>

The CFTC has taken a number of actions to assess the operation of CFTC and futures SRO financial regulatory systems during the market break, to identify measures that could be taken to reinforce the capacity of existing financial systems, to respond to extreme market volatility, and to stimulate SROs to review and enhance their own programs to augment available financial protection. These recommendations were made, notwithstanding the fact that there were no defaults of futures commissions merchants (FCMs) nor significant problems at such firms. These actions include:

- Establishment of a centralized computer base for futures commission merchant financial data; and

- Enhancement of market financial surveillance programs.

In response to the CFTC's recommendations, the futures exchanges have taken a number of actions to enhance the financial security of the futures markets. These actions include the following:

- The Chicago Mercantile Exchange's (CME) pool of security deposits, which are liquid funds to be used in the case of a default, was increased from $4.5 million to $42 million. This fund is but one source to which the Exchange would look in the event of a default. The Exchange also has a common-bond system that provides for the allocation among its clearing members of any loss to the Clearing House caused by a default. The aggregate capital of all Exchange firms is approximately $17 billion.

- The CME has passed a rule requiring guarantees from the owners of clearing members. The rule essentially requires each owner of 5 percent or more of the equity securities of the clearing member to guarantee all obligations arising out of the non-customer accounts (house and proprietary) of the clearing member.

- The CME's Clearing House is in the process of negotiating a substantial committed line of credit with major banks. This will provide added liquidity to the Clearing House to allow it to meet its obligations in the event of unusual conditions in the financial markets.

- Over the past year, the CME significantly increased the number of memberships that each clearing member must have in order to maintain clearing privileges. (These memberships may be sold by the Exchange in the event of a default by the firm.) As of May 6, 1988, all clearing members must have at least six memberships, two in each of the three divisions of the Exchange. Clearing members with a large number of branch offices or guaranteed introducing brokers have an additional membership requirement. Based on membership prices at the end of March 1988, the value of these memberships is $1.6 million per clearing member.

The foregoing actions are highlighted from a more extensive list contained in Appendix E. The Working Group encourages the CFTC and its SROs to continue to evaluate and improve further their programs.

D. <u>Systems Capacity Enhancements</u>

The GAO, in its "Preliminary Observations on the 1987 Crash," concluded that enhancement of the SROs' automated operational systems is a critical action that needed to be taken immediately. The SEC's Report also concluded that the October break demonstrated a need to expand the capacity of the NYSE to

meet the increased liquidity demands created by today's trading strategies and market structures. The Brady Report also cited the need to improve overall computer and communications performance.

The Working Group notes that substantial progress has been and is being made, but agrees that further improvements are needed in this area. Among the enhancements already in process are the following:

<u>The New York Stock Exchange (NYSE)</u>

- The NYSE is planning to have the capacity to handle a peak of 600 million shares by June of this year, and it believes that if it were to experience a 600-million-share day now, it would be able to process it with significantly fewer delays than the Exchange experienced last October.

- On April 30, the NYSE conducted a test of its 11 computer systems to determine whether it already could handle a 600 million share day. The preliminary results of the test indicated that core portions of the NYSE's order handling systems generally operated effectively.

- Beyond this, the NYSE is planning to have the capacity by late 1989 to process a billion shares.

- The NYSE is initiating an independent audit of its trading systems by an outside firm every 12 to 18 months to further ensure their proper operation. As the audits are conducted, the NYSE is going to share the findings with the SEC.

- In November 1987, the NYSE increased the Designated Order Turnaround (DOT) system's memory and separated several of the system's data files to allow more efficient processing. Further system enhancements are scheduled to be completed by July 1988 to improve DOT's processing capability even more.

- In January 1988, program changes were completed in the Limit Order System to reduce system bottlenecks discovered during the October market break. A major upgrade of the system with more efficient computers was completed in March 1988, resulting in a 40 percent increase in capacity.

- The NYSE had begun to replace completely its Automated Pricing and Reporting System prior to October 1987, but only a small fraction of the new system was operational by the week of the 19th. An entirely new system was completed on February 22, 1988.

- The ability of the NSYE's Universal Floor Device Controller to store and process data has been increased. To add additional capacity, major portions of data normally routed through the Universal Floor Device Controller are being re-routed to other systems, a process that will be completed by the end of June 1988.

- On January 19, 1988, the NYSE opened its expanded Blue Room, adding 30 more high speed printers for an increase of 20 percent. Seventeen more high speed printers were added to the trading floor in March 1988. In addition, the NYSE currently is working to double the speed of all existing printers.

- The NYSE also has increased the number of electronic display books on the trading floor by 70 percent, reducing the overall need for printers. In addition, it has increased the number of stocks on display books by over 140 percent since October 19th, so that currently there are approximately 1,150 stocks on 376 display books.

- The NYSE recently announced the formation of an Operations Advisory Committee to evaluate problems encountered during peak processing periods and to recommend synchronized corrective actions that would enhance the entire process.

- In March, the NYSE established a Pension Managers Advisory Committee to help make the NYSE more aware of the investment needs of fund managers and help keep the fund managers better informed of the system capabilities of the Exchange now and in the future.

<u>The American Stock Exchange (Amex)</u>

- The Amex is working with those specialists who have touchscreen execution (AutoPer) terminals located behind them to provide space to relocate the terminals in front to the front of the specialists post.

- In addition, the Amex is in the process of redesigning the AutoPer screen to eliminate the need, in some instances, to use an additional page to complete execution of an order. The redesigned screen will permit specialists to execute orders even more quickly and reduce the possibility of having orders print and being executed out of sequence.

- Amex has a pilot program underway with respect to the implementation of an electronic book that will provide smoother integration of AutoPer and booked limit orders.

- The Amex is developing systems to allow same-day floor-derived points of sale comparison for equities and options. It is well into the design phase of this system and plans to implement the first stage in the last quarter of 1988.

- The exchanges' examination of ways to upgrade order delivery systems to improve the capacity of Amex's systems to execute all orders -- including Intermarket Trading System (ITS) commitments -- is ongoing. The Amex and other exchanges are in the process of implementing such upgrades, and believe such developments will permit it, under reasonably anticipated high volume conditions, to execute incoming ITS commitments in a timely manner.

- An arrangement has been decided upon whereby OPRA will regularly update the vendor/user committee of the Information Industry Association on volume and capacity projections to assist the vendor community in its efforts to have facilities keep pace with growth and provide for unexpected spikes in activity.

- The Amex has adopted a policy of delisting selected series of puts and calls within an options class when no open interest exists.

- The Amex and the Chicago Board Options Exchange (CBOE) have proposals, currently awaiting SEC action, that will expand the use of their small order execution systems for options. In addition, the CBOE has filed with the SEC a number of proposed rule changes to increase market participation in its system.

National Association of Securities Dealers (NASD)

- The NASD has responded to problems encountered during the market break by proposing a number of initiatives:

  - raising the penalty of unexcused withdrawals by market makers from National Association of Securities Dealers Automated Quotation System (NASDAQ);

  - requiring all NASDAQ market makers to participate in its Small Order Execution System (SOES);

  - providing that SOES executions will continue in an Over-the-Counter (OTC)/National Market System security when quotes are locked or crossed;

  - eliminating preferencing of market makers when a locked or crossed market exists; and

  - establishing the Order Confirmation Transaction service that will permit firms to access market makers over the computer without voice contact.

- During and after the week of October 19, the NASD expanded the hours of operation of its Trade Acceptance and Reconciliation Service, which allows firms quickly to reduce the number of uncompared transactions.

- The NASD agrees with the SEC's suggestion that the SROs accelerate their efforts to generate same-day compared trades, thereby enabling members to know their positions and market exposure before trading commences the next day. The NASD plans an Automatic Confirmation Transaction System that, together with the Small Order Execution System, Order Confirmation Transaction Service, and the Trade Acceptance and Reconciliation Services, would provide an almost total same-day comparison capability for the NASDAQ market.

- The regional stock exchanges also have taken or are planning a number of actions to enhance their systems (as described more fully in the appendix).

Amex, NYSE, NSCC Committee

- A committee composed of representatives of the Amex, NYSE and National Securities Clearing Corporation (NSCC) has been formed to explore the possibility of shortening the comparison cycle with the intent of

increasing the amount of time available to process "don't knows" (DKs) and "questionable trades" (QTs) by one full day.

Option Price Reporting Authority

- The Options Price Reporting Authority (OPRA) Technical Committee immediately began to design system modifications that will allow the announcement of new series through computer formatted messages. Such modifications will in turn enable vendors to implement computer automatically programs to add these new series to their systems, eliminating the time-consuming and error-prone process of transcribing the administrative messages that is currently used. The Committee reached agreement on the message type at a meeting on December 9th, and implementation of the system modifications is expected to be completed this summer.

The Working Group encourages the securities SROs and clearing agencies to continue to make progress to help the market function smoothly and to provide prompt, quality executions for all market participants.

APPENDIX A

COORDINATED TRADING HALTS AND REOPENINGS

I. <u>250 Point Dow Jones Industrial Average (DJIA) Decline</u>

A. <u>Price Limits</u>

1. <u>Stock Index Futures Price Limits</u>: Stock index futures markets will set downward price limits at levels comparable to a 250 point Dow Jones Industrial Average (DJIA) decline below its previous day's closing value. When the limit is reached, the markets will trade only within the limit, unless there is a trading halt as described in Section B or a reopening following a trading halt as described in Section C.

2. <u>Broad-based Stock Index Options</u>: Broad-based stock index options markets (OEX, NYA, XMI, FNCI, XVL) will establish either comparable price limits or procedures under which all trading in the index options will cease at levels comparable to a 250 DJIA decline.

B. <u>Trading Halt</u>

If the DJIA falls 250 points below its previous day's closing value, all broker-dealer intermediated equity security 1/ trading in the United States, including all standardized individual stock and stock index options trading, and all stock index futures trading in the United States, will halt.

C. <u>Reopenings</u>

1. <u>Halts initiated prior to 3:00 p.m. EST or EDT</u>

a. <u>The New York Stock Exchange (NYSE)</u>: If the halt occurs prior to 3:00 p.m. EST or EDT, procedures similar to those used to open stocks on the NYSE on Expiration Fridays will be used in order to reopen trading on the NYSE 60 minutes after the initiation of the halt. Thus:

1/ "Equity security" is defined in Section 3(a)(11) of the Securities Exchange Act of 1934 and Rule 3a11-1 thereunder.

(i) 30 minutes after the halt occurs, market order imbalances for major stocks will be publicly disseminated (at present it is not feasible to include limit orders).

-- As a logistical matter, it may be necessary to have some size threshold for order imbalance dissemination (e.g., 50,000 shares) to facilitate prompt dissemination of key order imbalances. In addition, some limitation on the total number of stocks for which imbalances are disseminated may be necessary.

(ii) 45 minutes after the halt, quote indications will be provided indicating the expected range in which each stock would reopen.

(iii) 60 minutes after the halt, each stock will either:

AA. reopen, or

BB. if new orders substantially change the order imbalance, new quotations will be disseminated

-- this presumes that orders can be cancelled at any time prior to the reopening

CC. subsequent quote indications will be disseminated on an as needed basis in 10 minute intervals (or 5 minutes if the subsequent quote indication overlaps the prior quote indication).

b. <u>Other Markets</u>:

(i) Other markets will use any appropriate reopening procedures designed to permit them to recommence trading one hour after the initiation of the stock trading halt, except that trading in

standardized options on individual stocks will not recommence until trading in the underlying stock has recommenced in the stock's primary market.

(ii) After a one hour halt, trading in stock index futures and options could occur (at the option of each futures or options exchange) below the 250 limits (see Section I.A.), unless the markets decline to levels equivalent to 400 DJIA points below their previous day's closing levels (see Section II).

2. <u>Halts initiated between 3:00 - 3:30 p.m. EST or EDT</u>:

If the 250 level is reached between 3:00 - 3:30 p.m. EST or EDT, abbreviated reopening procedures will be used in order to permit markets either to reopen or to establish closing prices by the markets' normal closing times.

3. <u>Halts Initiated After 3:30 p.m. EST or EDT</u>: If the 250 level is reached after 3:30 p.m. EST or EDT, the market will close for the rest of the trading day.

II. <u>400 Point DJIA Decline</u>

A. Similar price limit, halt, and reopening procedures will be used for DJIA declines of 400 points, except that the halt will last two hours instead of one. Thus, if the 400 level is reached after 2:00 p.m. EST or EDT, the markets will close for the rest of the trading day.

III. <u>Trigger Readjustments</u>

A. Based upon current index levels, 250 and 400 point DJIA declines are approximately equivalent to 12% and 20% declines. The 250 and 400 point triggers and the comparable triggers for the stock index futures and options markets will be reviewed at least quarterly to determine if changes in index levels necessitate changes to these triggers in order to maintain percentages approximately equivalent to 12% and 20%.

APPENDIX B

ADEQUACY OF PRUDENTIAL MARGIN REQUIREMENTS

While margins requirements may be thought to serve a variety of purposes, the crucial one analyzed in this appendix is the setting of margin requirements to yield a reasonable level of protection against default, i.e., prudential maintenance margins. The purpose of prudential margins is maintaining the financial integrity of the obligation, i.e., assuring that market participants who take positions in securities, futures, or options can fulfill their obligations to brokers and other intermediaries so that brokers and clearinghouses can fulfill their obligations as well. Default can occur only if an adverse price change, after the margin call but before the position is sold out, is larger than the remaining margin and the customer avoids paying the resulting liability. Whether a particular margin level is considered adequate to protect brokers and futures commission merchants (FCMs) depends, among other things, on the level of default risk exposure that will be tolerated. Margins of 100 percent would fully assure the solvency of the brokers or FCMs, but would also tend to reduce the benefits experienced by investors from trading on margin or hedging with stock-index futures and options. Generally, much lower margin levels are adequate to provide protection against 90, 95, or even 99 percent of expected price movements. Very low margin levels, however, could leave the broker or FCM open to an unacceptable risk of failure. The margin level ultimately chosen will reflect the risk exposure tolerance of the exchange or clearinghouse.

Another important factor relevant to the adequacy of margin requirements is the period of time the broker or the FCM is exposed to default risk on a customer's open positions--the amount of time expected to lapse between the margin call and the customer's response. This grace period depends on the liquidity of the relevant investor group and the efficiency of the clearing and settlement system. In the futures markets, where investors are primarily institutions and settlement occurs at least daily, margins that will cover the vast majority of one-day price movements would be considered adequate. In the cash markets, however, where individual investors are relatively more important and settlement takes as long as five days, margins should be adequate to cover price movements over three or five-day periods. A broker is allowed to give an investor up to 15 business days to meet a margin call. In practice, however, most brokers demand payment over a shorter period.

Experimental Design

This analysis of margin adequacy takes two different, but related, approaches. The first is a non-parametric approach in which actual frequency distributions in price movements are calculated over various sample periods. These distributions are then employed to determine the margin required to cover price changes given various levels of exposure.

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The second is a parametric approach following Figlewski (Stephen Figlewski, "Margins and Market Integrity: Margin Setting for Stock Index Futures and Options," The Journal of Futures Markets, 1984, pp. 385-416). Assuming that stock prices follow a logarithmic diffusion process with a constant drift parameter (r) and volatility (v) per unit of time, one can calculate the probability that a security price will change enough, following a maintenance margin call, such that the remaining margin is insufficient (i.e., the margin is violated). While this probability obviously depends on r and v, it also depends on the level of the maintenance margin and the length of the grace period. In particular, the higher the maintenance margin, the lower the probability of a margin violation; the higher r (which can be thought of as an annualized rate of return due to price movements during the grace period), the lower the probability of a margin violation; the higher v (the standard deviation of price movements), the higher the probability of a margin violation; and, the longer the length of the grace period, the higher the probability of a margin violation.

Non-Parametric Results

Frequency distributions were calculated (a) only for price declines and (b) for all price changes over six sample periods:

(1) January 1986 - April 1988,

(2) January 1986 - September 1987,

(3) October 1987 - April 1988,

(4) November 1987 - April 1988,

(5) June 1984 - April 1988,

(6) June 1984 - September 1987.

Tables 1-6 indicate the minimum levels of maintenance margins necessary to protect brokers and futures clearinghouses against losses that might be incurred should stock prices decline and investors fail to meet margin calls. In particular, the tables show margins required to cover most of the recent price declines in the Standard and Poor's 500 stock index and price declines in the 75 individual stocks that compose the Institutional index, that is, stocks of large companies favored by institutional investors. Block 2 in tables 1-6 indicates the margins necessary to protect against price declines on 50 percent of the 75 individual stocks composing the Institutional Index that demonstrated the least variability during this sample period for varying grace periods and levels of exposure. Blocks 3-5 indicate similar margins for larger percentages of the stocks in

this index. Tables 7-12 contain comparable information for all price changes in the nearest to expire S&P 500 and MMI maxi futures contracts.

The two key factors relevant to judging the adequacy of margin requirements--the acceptable level of exposure and the length of the grace period--are highlighted in the tables. For example, the first three lines of each of the first twelve tables indicate the margins necessary to protect FCMs and broker/dealers against possible price movements of the S&P 500 index over periods of one, three and five days. (Price declines for the cash index in tables 1-6; price declines and increases for the futures index in tables 7-12). The three columns indicate the 90, 95, and 99 percent confidence intervals or levels of exposure associated with the indicated margins. For example, the first line in the S&P 500 index block in table 1 indicates that, during the January 2, 1986 to April 29, 1988 period, a one-day price decline greater than 4.40 percent or a five-day price decline greater than 10.09 percent occurred in only one percent of the observations. In other words, if the distribution of price declines were assumed to remain the same in the future as it was during this period, a margin of 4.4 percent when margin calls must be met on the next day, or of just over 10 percent when margin calls do not have to meet until 5 days have passed, would be expected to provide adequate protection against 99 percent of all price declines of the S&P 500 index. From table 7, comparable, though slightly larger, margins would be required to provide adequate protection against 99 percent of all price declines or 98 percent of all price changes (i.e., increases and decreases) for the S&P 500 futures index. Furthermore, as exhibited in blocks 2-5 of tables 1-6, since individual stocks typically exhibit larger variability than either cash or futures indexes, margin requirements are accordingly higher for individual stocks given the same grace period and level of exposure.

To summarize, for each sample period, tables 1-12 demonstrate three important characteristics concerning the adequacy of prudential maintenance margins:

(1) The lower the level of exposure (i.e., the higher the desired level of protection against price changes), the higher the level of margins.

(2) The longer the grace period, the higher the necessary margin level for a given level of exposure.

(3) Indexes (cash or futures) exhibit less price volatility than do individual stocks, implying that lower margins on index products than on individual stocks are adequate to achieve the same protection against price changes.

Given the sample specificity of the calculated frequency distributions, a comparison of the margins required over different samples sheds light on the robustness of "adequacy of margins" calculations over time. Various permutations of time periods were chosen--short and very recent periods, long periods, and periods including and excluding the October 1987 stock market crash and the recent period of price volatility. Because of differences in price volatility over time, the actual levels of margins required to cover price movements are very sensitive to the time period of analysis. In particular, inclusion of the October 1987 market break uniformly and markedly increases the "adequate" margin level. For example, table 3, which contains only observations from the market break and the recent period, indicates much higher margin levels than table 2, which contains only pre-crash observations. For each of the periods, however, the level of prudential margins still depends on the level of exposure, the length of the grace period, and the volatility of indexes versus individual stocks, as discussed above.

Parametric Results

Determining an "adequate" margin requirement using the parametric approach outlined above requires knowledge of r and v in addition to the length of the grace period and the acceptable level of exposure. Reasonable ranges of values for r and v can be obtained by calculating these two variables over various sample periods. Table 13 contains these calculations annually for the S&P 500 and the NYSE Composite indexes for the period 1975-87, for the first 63 business days of 1988, and for four of the six sample periods examined in tables 1-12. The tables reveal that the annual values of r range from -0.126 (i.e., -12.6 percent) to 0.281 for the S&P 500 index and range between -0.100 and 0.284 for the NYSE Composite index. Annual values of v range between 0.092 and 0.342 for the S&P 500 index and between 0.087 and 0.318 for the NYSE Composite index. Note that the annual values of v for 1987 are by far the largest during the more than thirteen years examined. Furthermore, the value of v for the first 63 business days of 1988 has remained somewhat above pre-1987 levels. Consequently, higher than historically normal values of v may now be appropriate for setting prudential margins.

Also, since an objective of this analysis is the examination of margin adequacy for individual stocks as well as for cash and futures indexes, it is necessary to obtain values of v for individual stocks. Chicago Research and Trading Ltd. (CRT) has provided estimates of v for three categories of stocks: (a) low volatility stocks (e.g., utilities), (b) medium volatility stocks (e.g., conglomerates), and (c) high volatility stocks (e.g., computer software companies). During approximately the last two years (including October 19, 1987), CRT's highest calculated value of v is 1.10. This value is used as the upper extreme in the margin calculations that follow.

The parametric approach enables the analysis of margin adequacy from two angles. First, given a required margin level, values for r and v, and a particular grace period, the probability of a margin violation can be calculated. Alternatively, given values of r and v, a particular grace period, and a desired probability of margin violation (i.e. one minus the level of exposure in decimals), the necessary margin requirement can be calculated. To conform to the format of the non-parametric exercise the latter approach was chosen.

Tables 14-17 contain the margin requirements necessary to achieve a desired probability of a margin violation 0.01 (one percent) in tables 14 and 15, 0.05 (5 percent) in tables 16 and 17) for two values of r (0.00 in tables 14 and 16, 0.10 in tables 15 and 17) and for a wide range of grace periods and values of v. (The margin calculation was found to be relatively insensitive to r. Hence, results using two representative values are the only ones reported.) Grace periods of less than one day were included to examine the impact of intra-day margin calls, a common phenomenon in futures markets.

The calculated margins from the Figlewski model conform quite closely with those calculated in the non-parametric exercise. For example, from table 14, for daily settlement and v=0.35 (just above the calculated value of v for 1987 for the two indexes), a margin requirement of 5.4 percent would be expected to provide adequate protection against 99 percent of all price declines. This is essentially the same as the 4.4 percent contained in table 1 for the S&P 500 index. Furthermore, as the volatility increases, so does the margin requirement given the same level of exposure. Also, as before, if the grace period is 5 days (and v=0.35), the required margin rises to 11.8 percent in table 14, again comparable to the 10.09 percent in table 1. Finally, for a higher level of exposure (table 15 compared with table 17), a lower margin requirement will suffice.

Thus, the parametric exercise yields the same general conclusions as did the non-parametric approach: adequate prudential margins vary inversely with the level of exposure, directly with the length of the grace period, and directly with price volatility.

Conclusion

The existing structure of maintenance margins appears to be adequate for prudential purposes even if one were to assume that protection against 95 or 99 percent of all price declines was required. This conclusion is supported by both the non-parametric exercise conducted across a variety of sample periods and the parametric exercise using historically reasonable values for return and volatility parameters.

An important additional conclusion is that "harmonious" or "consistent" margins across cash and futures markets do <u>not</u> imply

equal margins across cash and futures markets. The analysis here indicates clearly that margin adequacy depends critically on price volatility and the length of the grace period following the margin call. These relationships are clearly evident in the attached tables (e.g., tables 1 and 14), but are visually apparent in figure 1. Figure 1 plots the maintenance margin necessary to achieve protection against 99 percent of all price declines assuming r=0.00 for various grace periods and volatilities. To the extent that the volatility of indexes (cash or futures) is lower than those of individual stocks and that grace periods are longer in the cash market than in the futures market, maintenance margins in the futures market (e.g., point A in figure 1 where v=0.25 and the grace period is one day) are consistent with much higher margins in the cash market (e.g., point B or C where v=0.5 and 1.0, respectively, and the grace period in five days).

Table 1

MAINTENANCE MARGIN REQUIRED TO COVER POTENTIAL PRICE DECLINES

Period: 1/2/86 - 4/29/88

		Exposure tolerance		
		90%	95%	99%
1. S&P 500 Index				
	One-Day	1.33	2.03	4.40
	Three-Day	2.53	3.73	7.09
	Five-Day	3.30	4.82	10.09
2. 50% of Institutional Index Stocks*				
	One-Day	2.06	2.94	5.44
	Three-Day	3.89	5.19	9.27
	Five-Day	4.85	6.60	11.75
	Fifteen-Day	7.28	10.41	24.66
3. 80% of Institutional Index Stocks*				
	One-Day	2.36	3.26	6.52
	Three-Day	4.20	5.78	11.66
	Five-Day	5.38	7.30	17.22
	Fifteen-Day	8.55	12.41	30.62
4. 90% of Institutional Index Stocks*				
	One-Day	2.53	3.48	7.29
	Three-Day	4.47	6.20	13.19
	Five-Day	5.61	7.62	19.12
	Fifteen-Day	9.05	13.60	33.45
5. 100% of Institutional Index Stocks*				
	One-Day	3.55	5.29	8.87
	Three-Day	5.82	8.04	19.16
	Five-Day	7.61	10.24	29.21
	Fifteen-Day	11.96	17.39	42.80

* 75 Individual Stocks Composing the Institutional Index

Table 2

MAINTENANCE MARGIN REQUIRED TO COVER POTENTIAL PRICE DECLINES

Period: 1/2/86 - 10/2/87

		Exposure Tolerance		
		90%	95%	99%
1. S&P 500 Index				
	One-Day	1.07	1.65	2.56
	Three-Day	1.94	2.80	4.85
	Five-Day	2.35	3.69	6.35
2. 50% of Institutional Index Stocks*				
	One-Day	1.84	2.47	3.95
	Three-Day	3.29	4.46	6.85
	Five-Day	4.12	5.54	8.25
	Fifteen-Day	5.98	8.26	12.41
3. 80% of Institutional Index Stocks*				
	One-Day	2.09	2.77	4.45
	Three-Day	3.66	4.98	7.90
	Five-Day	4.61	5.94	9.52
	Fifteen-Day	6.92	9.27	14.66
4. 90% of Institutional Index Stocks*				
	One-Day	2.23	2.96	5.00
	Three-Day	3.85	5.12	8.23
	Five-Day	4.78	6.29	10.88
	Fifteen-Day	7.26	10.44	16.78
5. 100% of Institutional Index Stocks*				
	One-Day	3.21	4.47	6.54
	Three-Day	5.22	6.96	11.78
	Five-Day	6.26	8.31	13.49
	Fifteen-Day	10.50	13.80	22.12

* 75 Individual Stocks Composing the Institutional Index

Table 3

MAINTENACE MARGIN REQUIRED TO COVER POTENTIAL PRICE DECLINES

Period: 10/5/87 - 4/29/88

		Exposure Tolerance		
		90%	95%	99%
1. S&P 500 Index				
	One-Day	2.29	3.82	14.98
	Three-Day	4.36	6.08	23.85
	Five-Day	5.12	9.05	26.25
2. 50% of Institutional Index Stocks*				
	One-Day	3.19	4.79	16.77
	Three-Day	5.69	7.68	24.53
	Five-Day	7.38	10.37	26.65
	Fifteen-Day	10.68	17.35	30.53
3. 80% of Institutional Index Stocks*				
	One-Day	3.65	5.51	19.80
	Three-Day	6.66	9.87	28.47
	Five-Day	8.52	13.71	31.37
	Fifteen-Day	13.77	26.65	37.26
4. 90% of Institutional Index Stocks*				
	One-Day	4.02	6.25	21.83
	Three-Day	7.37	10.72	31.38
	Five-Day	9.59	16.09	34.61
	Fifteen-Day	16.24	28.50	44.21
5. 100% of Institutional Index Stocks*				
	One-Day	5.63	7.87	26.80
	Three-Day	10.25	17.02	37.00
	Five-Day	13.24	27.47	41.64
	Fifteen-Day	23.17	35.46	56.03

* 75 Individual Stocks Composing the Institutional Index

Table 4

MAINTENANCE MARGIN REQUIRED TO COVER POTENTIAL PRICE DECLINES

Period: 11/2/87 - 4/29/88

		Exposure Tolerance		
		90%	95%	99%
1. S&P 500 Index				
	One-Day	1.93	2.65	6.16
	Three-Day	3.66	4.53	6.43
	Five-Day	4.64	5.10	7.55
2. 50% of Institutional Index Stocks*				
	One-Day	2.57	3.74	7.08
	Three-Day	4.63	5.83	8.67
	Five-Day	5.72	7.03	9.31
	Fifteen-Day	7.09	8.77	12.40
3. 80% of Institutional Index Stocks*				
	One-Day	3.02	4.28	8.63
	Three-Day	5.50	6.86	10.62
	Five-Day	6.80	8.37	12.00
	Fifteen-Day	9.48	12.10	15.17
4. 90% of Institutional Index Stocks*				
	One-Day	3.26	4.76	9.74
	Three-Day	5.91	7.76	12.04
	Five-Day	7.23	8.99	13.21
	Fifteen-Day	11.46	14.07	19.12
5. 100% of Institutional Index Stocks*				
	One-Day	5.08	7.01	11.42
	Three-Day	7.92	10.99	20.87
	Five-Day	11.05	13.60	17.38
	Fifteen-Day	14.52	20.12	25.97

* 75 Individual Stocks Composing the Institutional Index

Table 5

MAINTENANCE MARGIN REQUIRED TO COVER POTENTIAL PRICE DECLINES

Period: 6/1/84 - 4/29/88

		Exposure Tolerance		
		90%	95%	99%
1. S&P 500 Index				
	One-Day	0.96	1.53	3.12
	Three-Day	1.87	2.84	6.07
	Five-Day	2.27	3.83	7.41
2. 50% of Institutional Index Stocks*				
	One-Day	1.89	2.66	4.72
	Three-Day	3.37	4.65	7.74
	Five-Day	4.12	5.80	9.66
	Fifteen-Day	6.08	8.59	19.53
3. 80% of Institutional Index Stocks*				
	One-Day	2.10	2.92	5.46
	Three-Day	3.78	5.15	9.07
	Five-Day	4.68	6.46	11.35
	Fifteen-Day	7.12	10.21	27.28
4. 90% of Institutional Index Stocks*				
	One-Day	2.27	3.12	6.34
	Three-Day	4.07	5.47	10.59
	Five-Day	5.08	6.89	13.76
	Fifteen-Day	8.18	11.45	28.76
5. 100% of Institutional Index Stocks*				
	One-Day	3.38	4.79	7.88
	Three-Day	5.76	7.80	14.04
	Five-Day	7.35	9.73	17.28
	Fifteen-Day	11.28	15.04	36.29

* 75 Individual Stocks Composing the Institutional Index

Table 6

MAINTENANCE MARGIN REQUIRED TO COVER POTENTIAL PRICE DECLINES

Period: 6/1/84 - 10/2/87

		Exposure Tolerance		
		90%	95%	99%
1. S&P 500 Index				
	One-Day	0.84	1.21	2.32
	Three-Day	1.60	2.18	3.89
	Five-Day	1.93	2.83	5.19
2. 50% of Institutional Index Stocks*				
	One-Day	1.73	2.36	3.82
	Three-Day	3.02	4.07	6.20
	Five-Day	3.74	5.03	7.88
	Fifteen-Day	5.33	7.30	11.70
3. 80% of Institutional Index Stocks*				
	One-Day	1.96	2.69	4.37
	Three-Day	3.37	4.60	7.27
	Five-Day	4.14	5.55	8.91
	Fifteen-Day	6.17	8.54	14.23
4. 90% of Institutional Index Stocks*				
	One-Day	2.10	2.76	4.60
	Three-Day	3.61	4.86	8.23
	Five-Day	4.59	6.33	10.12
	Fifteen-Day	7.39	10.00	16.29
5. 100% of Institutional Index Stocks*				
	One-Day	3.15	4.44	6.61
	Three-Day	5.41	7.32	11.15
	Five-Day	6.77	8.86	12.86
	Fifteen-Day	10.62	13.05	27.78

* 75 Individual Stocks Composing the Institutional Index

Table 7

MAINTENANCE MARGINS REQUIRED TO COVER POTENTIAL PRICE MOVEMENTS

Period: 1/1/86 - 4/22/88

	Exposure Tolerance					
	Price Declines			Price Increases		
	90%	95%	99%	90%	95%	99%
1. S&P 500 Futures						
One-day	-1.57	-2.39	-5.33	1.57	1.96	3.87
Three-day	-2.74	-4.08	-7.88	2.73	3.47	7.03
Five-day	-3.74	-5.03	-11.08	3.36	4.45	6.51
2. MMI maxi Futures						
One-day	-1.57	-2.34	-4.85	1.58	2.21	3.87
Three-day	-2.64	-3.88	-7.03	2.75	3.70	5.96
Five-day	-3.50	-5.11	-10.40	3.65	4.59	6.62

Table 8

MAINTENANCE MARGINS REQUIRED TO COVER POTENTIAL PRICE MOVEMENTS

Period: 1/1/86 - 10/1/87

	Exposure Tolerance					
	Price Declines			Price Increases		
	90%	95%	99%	90%	95%	99%
1. S&P 500 Futures						
One-day	-1.19	-1.92	-2.98	1.36	1.77	2.76
Three-day	-2.24	-2.99	-5.25	2.50	3.17	4.12
Five-day	-2.76	-4.04	-7.15	3.25	4.08	5.27
2. MMI maxi Futures						
One-day	-1.16	-1.85	-2.81	1.42	1.99	2.78
Three-day	-2.07	-2.96	-4.94	2.56	3.28	4.35
Five-day	-2.62	-3.89	-5.97	3.50	4.21	5.91

Table 9

MAINTENANCE MARGINS REQUIRED TO COVER POTENTIAL PRICE MOVEMENTS

Period: 10/1/87 - 4/22/88

	Exposure Tolerance					
	Price Declines			Price Increases		
	90%	95%	99%	90%	95%	99%
1. S&P 500 Futures						
One-day	-2.52	-3.95	-20.01	2.06	3.54	14.22
Three-day	-4.72	-6.47	-31.17	3.83	5.10	17.95
Five-day	-5.34	-9.43	-33.68	4.85	5.69	13.76
2. MMI maxi Futures						
One-day	-2.84	-4.53	-17.39	2.29	3.81	11.32
Three-day	-4.90	-6.93	-26.19	3.97	4.80	15.19
Five-day	-6.12	-9.72	-29.39	4.37	6.28	14.02

Table 10

MAINTENANCE MARGINS REQUIRED TO COVER POTENTIAL PRICE MOVEMENTS

Period: 11/1/87 - 4/22/88

	Exposure Tolerance					
	Price Declines			Price Increases		
	90%	95%	99%	90%	95%	99%
1. S&P 500 Futures						
One-day	-2.35	-2.95	-7.70	1.79	2.24	4.17
Three-day	-3.77	-5.03	-7.11	3.41	4.50	10.37
Five-day	-4.84	-5.22	-7.92	4.77	5.47	15.43
2. MMI maxi Futures						
One-day	-2.45	-2.92	-7.16	2.06	2.47	3.90
Three-day	-4.10	-5.18	-6.92	3.72	4.67	9.02
Five-day	-5.14	-5.93	-9.18	4.49	6.32	15.41

Table 11

MAINTENANCE MARGINS REQUIRED TO COVER POTENTIAL PRICE MOVEMENTS

Period: 6/1/84 - 4/22/88

	Exposure Tolerance					
	Price Declines			Price Increases		
	90%	95%	99%	90%	95%	99%
1. S&P 500 Futures						
One-day	-1.07	-1.84	-3.41	1.33	1.79	3.37
Three-day	-2.07	-3.06	-6.31	2.42	3.08	4.97
Five-day	-2.56	-4.10	-8.12	3.08	3.99	6.27
2. MMI maxi Futures						
One-day	-1.13	-1.82	-3.93	1.36	1.99	3.81
Three-day	-2.01	-3.03	-6.52	2.48	3.35	4.91
Five-day	-2.60	-4.15	-6.92	3.12	4.13	6.52

Table 12

MAINTENANCE MARGINS REQUIRED TO COVER POTENTIAL PRICE MOVEMENTS

Period: 6/1/84 - 10/1/87

	Exposure Tolerance					
	Price Declines			Price Increases		
	90%	95%	99%	90%	95%	99%
1. S&P 500 Futures						
One-day	-1.00	-1.43	-2.58	1.25	1.68	2.64
Three-day	-1.82	-2.37	-4.64	2.30	2.90	4.16
Five-day	-2.15	-3.12	-5.24	2.93	3.37	5.41
2. MMI maxi Futures						
One-day	-0.94	-1.46	-2.57	1.23	1.65	2.70
Three-day	-1.64	-2.41	-3.88	2.33	2.92	4.15
Five-day	-2.00	-2.94	-4.71	2.94	3.84	5.88

Table 13

MEAN RETURN AND VOLATILITY CALCULATIONS FOR STOCK INDEXES

Period	N*	S&P 500 Index		NYSE Composite Index	
		r	v	r	v
1975	253	0.281	0.156	0.284	0.153
1976	253	0.180	0.112	0.200	0.109
1977	252	-0.126	0.092	-0.100	0.087
1978	252	0.010	0.127	0.021	0.125
1979	253	0.119	0.110	0.148	0.110
1980	253	0.235	0.166	0.234	0.164
1981	253	-0.105	0.136	-0.093	0.133
1982	253	0.141	0.184	0.134	0.173
1983	253	0.163	0.140	0.165	0.126
1984	250	0.014	0.128	0.013	0.119
1985	252	0.241	0.102	0.239	0.095
1986	253	0.140	0.153	0.134	0.141
1987	253	0.020	0.342	-0.002	0.318
1988	63	0.192	0.233	0.242	0.209
6/1/84-10/2/87	844	0.239	0.137	0.230	0.127
1/2/87-10/2/87	191	0.413	0.158	0.381	0.146
10/2/87-3/31/88	126	-0.484	0.472	-0.457	0.439
11/2/87-3/31/88	105	0.068	0.258	0.099	0.234

* Number of business days.

Table 14

MAINTENANCE MARGIN REQUIREMENTS NECESSARY TO SET PROBABILITY OF MARGIN VIOLATION BELOW ONE PERCENT
(r = 0.00)

Grace Period (days)	Values of v								
	0.10	0.15	0.20	0.25	0.35	0.50	0.75	1.00	1.10
0.2	0.7	1.1	1.4	1.8	2.5	3.5	5.2	6.9	7.6
0.5	1.1	1.7	2.2	2.8	3.9	5.5	8.1	10.7	11.7
1	1.6	2.4	3.1	3.9	5.4	7.7	11.3	14.8	16.1
2	2.2	3.3	4.4	5.5	7.6	10.7	15.6	20.2	22.0
3	2.7	4.1	5.4	6.7	9.2	12.9	18.7	24.2	26.2
5	3.5	5.2	6.9	8.5	11.8	16.4	23.5	30.0	32.5
10	4.9	7.3	9.6	11.9	16.2	22.3	31.5	39.7	42.6
20	6.9	10.2	13.3	16.4	22.1	30.0	41.5	51.1	54.4

Table 15

MARGIN REQUIREMENTS NECESSARY TO SET PROBABILITY OF MARGIN VIOLATION BELOW ONE PERCENT
(r = 0.10)

Grace Period (days)	Values of v								
	0.10	0.15	0.20	0.25	0.35	0.50	0.75	1.00	1.10
0.2	0.7	1.1	1.4	1.8	2.5	3.5	5.2	6.9	7.6
0.5	1.1	1.7	2.2	2.8	3.9	5.5	8.1	10.7	11.7
1	1.6	2.3	3.1	3.9	5.4	7.6	11.3	14.7	16.1
2	2.2	3.3	4.4	5.4	7.5	10.6	15.5	20.2	22.0
3	2.6	4.0	5.3	6.6	9.1	12.8	18.7	24.1	26.2
5	3.3	5.1	6.7	8.4	11.6	16.2	23.4	29.9	32.4
10	4.6	7.0	9.3	11.6	15.9	22.1	31.3	39.5	42.4
20	6.3	9.6	12.7	15.8	21.6	29.6	41.1	50.7	54.1

Table 16

MARGIN REQUIREMENTS NECESSARY TO SET PROBABILITY
OF MARGIN VIOLATION BELOW FIVE PERCENT
(r = 0.00)

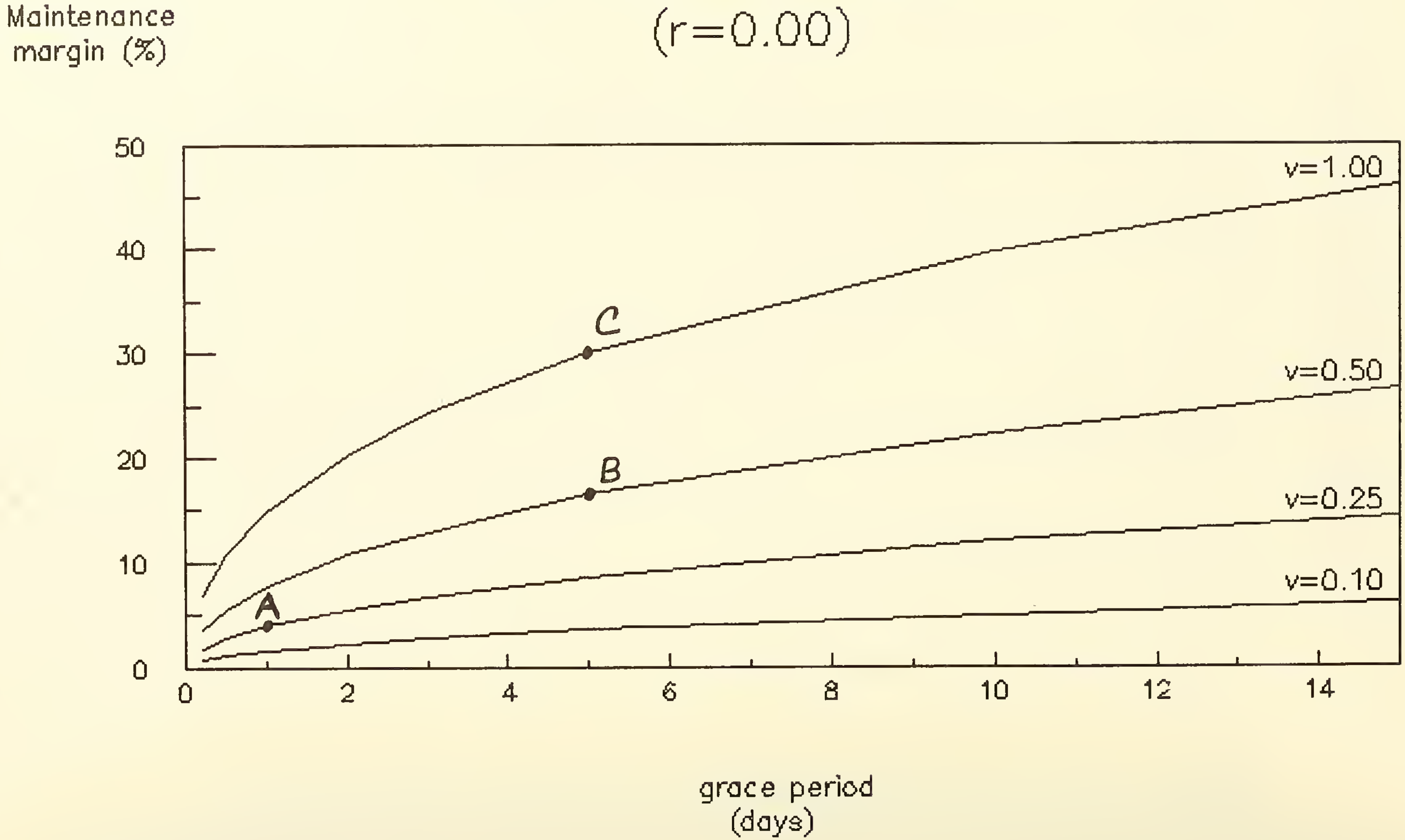
Grace Period (days)	Values of v								
	0.10	0.15	0.20	0.25	0.35	0.50	0.75	1.00	1.10
0.2	0.5	0.8	1.1	1.3	1.9	2.7	4.0	5.3	5.8
0.5	0.9	1.3	1.7	2.1	3.0	4.2	6.2	8.2	9.0
1	1.2	1.8	2.4	3.0	4.2	5.9	8.7	11.4	12.5
2	1.7	2.5	3.4	4.2	5.8	8.2	12.1	15.8	17.2
3	2.1	3.1	4.1	5.1	7.1	10.0	14.6	19.0	20.7
5	2.7	4.0	5.3	6.6	9.1	12.7	18.4	23.8	25.8
10	3.8	5.6	7.4	9.2	12.6	17.5	25.0	31.9	34.5
20	5.3	7.8	10.3	12.7	17.3	23.8	33.5	41.9	45.0

Table 17

MARGIN REQUIREMENTS NECESSARY TO SET PROBABILITY OF MARGIN VIOLATION BELOW FIVE PERCENT
(r = 0.10)

Grace Period (days)	Values of v								
	0.10	0.15	0.20	0.25	0.35	0.50	0.75	1.00	1.10
0.2	0.5	0.8	1.1	1.3	1.9	2.7	4.0	5.3	5.8
0.5	0.8	1.3	1.7	2.1	2.9	4.2	6.2	8.2	9.0
1	1.2	1.8	2.4	3.0	4.1	5.9	8.7	11.4	12.5
2	1.6	2.5	3.3	4.1	5.8	8.2	12.0	15.7	17.2
3	2.0	3.0	4.0	5.0	7.0	9.9	14.5	18.9	20.6
5	2.5	3.8	5.1	6.4	8.9	12.6	18.3	23.7	25.7
10	3.5	5.3	7.1	8.9	12.3	17.2	24.8	31.7	34.3
20	4.7	7.2	9.7	12.1	16.8	23.3	33.1	41.6	44.7

Figure 1
Relationship between Maintenance Margin and Grace Period for Probability of Violation of 0.01
(r=0.00)



APPENDIX C

REPORT OF STAFF SUBGROUP ON CREDIT PAYMENT AND SETTLEMENT SYSTEM ISSUES

I. INTRODUCTION AND SUMMARY OF KEY ISSUES

The staff subgroup working on credit and payment system issues has completed interviews with market participants--including SROs, banks, and investment firms--in New York and Chicago. The primary purpose of the visits was to ask senior management of these institutions about weaknesses in the current system that may have impeded the smooth flow of credit and payments in October and to elicit their views on possible steps to strengthen the system. A complete summary of these interviews is contained in Section II below.

The views expressed by the market participants did not imply a need for major reform of the structure of systems for clearing and settling securities and their derivative instruments. Given the magnitude of the payments flows and stresses imposed on the clearing systems in October, most felt that the market mechanisms had held up quite well. Nonetheless, there are areas where it was felt that improvements could be made. In broad terms, these areas include better coordination of payment timing and linkages among the exchanges to ease cash flow problems, clarification of responsibilities of clearing organizations and their members, the application of the Uniform Commercial Code to pledges of securities as collateral for loans, and procedures to ensure adequate information flows on which to base decisions.

Improvements have been made in some of these areas already, and ongoing discussions among the exchanges, regulators, and financial institutions are seeking solutions to others. The following summarizes issues viewed as important in the payment and settlement process and notes those issues viewed as less important.

TO IMPROVE THE COORDINATION AND TIMING OF CASH FLOWS AMONG EXCHANGES:

1. Timing of variation margin pays and collects should be coordinated to ease liquidity problems. Steps already have been taken by the exchanges: intraday

margin pays and collects now are done concurrently on the Chicago Mercantile Exchange (CME), and the CME and Board of Trade Clearing Corporation (BOTCC) have coordinated the timing of daily and intraday settlements. There may be other steps that can be taken, but the private sector appears to be addressing this issue.

2. Efforts to reduce the volume of cash flow by netting payment obligations arising from securities and futures positions across different markets with different settlement procedures and time frames is attractive in concept. Nevertheless, there are difficult practical problems involved in implementing such arrangements. Netting, in effect, would link clearinghouses in risk sharing pools. Of particular concern are legal and economic questions of who bears what risk in the event of a default of one or more parties.

   Formal netting arrangements may be viewed as steps toward longer-run unification of the clearing process under a single clearing structure. Market participants generally were skeptical of the utility and feasibility of creating a single clearing structure in the near future.

3. Cross-margining of futures and options positions would lower initial margin requirements for a given position and consequently would reduce cash or securities behind a given volume of gross positions. The implications of cross-margining for risk exposures is uncertain.

4. The availability of Fedwire during periods of crisis, which may fall outside normal operating hours, is very important. But Fedwire is useful only to the extent that knowledgeable lending officers at banks are available to make credit decisions when funds transfers are needed. Procedures should be established in advance for early opening of Fedwire, if needed, in unusual situations. Such procedures should provide for good communication among the clearing organizations and their members as well as the settlement banks and the Federal Reserve Banks, with informed personnel at banks available to make credit decisions.

TO REMOVE UNCERTAINTY CONCERNING LENDER RESPONSIBILITIES IN CREDIT ARRANGEMENTS:

5. "Finality" of the settlement process prior to the opening of trading is important to market participants. Contractual arrangements between settlement banks and clearing organizations should clarify the responsibilities of each party when clearing member funds are insufficient and determine when payments to the clearing organization are final and irrevocable. To this end, discussions between banks and clearing organizations are underway.

6. Futures commission merchants' (FCMs) responsibilities to their customers in the event of non-payment by a clearing organization should be clarified.

7. Legal means of establishing a "perfected security interest" in an option instrument should be investigated. Existing ambiguities in the Uniform Commercial Code and bankruptcy laws concerning the status of options as collateral inhibit the willingness of some banks to finance options positions. More broadly, efforts to strengthen the legal rights of banks lending against options under federal bankruptcy laws and differing versions of the Uniform Commercial Code would ease lending and collateral processes.

8. The desirability of developing collateral arrangements other than those currently provided by "agreements-to-pledge" (APs) should be investigated to see if greater security can be achieved at reasonable costs. Most market participants, however, suggested that flexibility, competitive pressures, and cost considerations necessitated reliance on APs and expressed concern that requiring delivery of collateral could be destabilizing during times of stress.

9. On the issue of "committed" versus "uncommitted" lines of credit, there appears to be little advantage to recommending greater reliance on "committed" lines. "Material adverse change" clauses may permit creditors to escape such commitments during periods of stress. The cost of a paid line that assured access to credit during crisis periods likely would be prohibitive for borrowers that need it the most.

TO IMPROVE INFORMATION FLOWS AMONG FINANCIAL MARKET PARTICIPANTS:

10. Sharing of information on variation margin pays and collects is important to the exchanges, and systems are in progress to provide this service.

11. Commercial banks do not feel a need to have information on margin pays and collects for their lending decisions. The major banks also do not see a need for margin surplus and deficit data or aggregate position data from the exchanges on a routine basis. Typically, they can get this information quickly from their customers, as needed. Formal arrangements for sharing information with market participants raised concerns about confidentiality problems among those interviewed.

II. SUMMARY OF INTERVIEWS WITH MARKET PARTICIPANTS

On April 11 and 12 staff from the four agencies conducted interviews with senior management at a number of major commercial banks, investment banks, and clearing organizations for equity-related products. The purpose of these interviews was to solicit views of senior market participants at these institutions about what actions, if any, should be taken to strengthen market mechanisms and to ensure the adequacy of information necessary to support credit decisions for financing market positions and funding settlement obligations. To provide a framework for these discussions, a list of questions was sent to the participating institutions prior to the interviews focusing on three broad areas: information to support credit decisions; clearing and settlement system characteristics; and credit facility characteristics.

The questions on "Information to Support Credit Decisions" were intended to evaluate the adequacy of current information flows to creditors; the ability of financial institutions to monitor on a current basis their aggregate credit exposures to customers in different markets as well as their own positions; and the need for greater sharing of position data and other information collected by the futures and options exchanges. "Clearing and Settlement System Characteristics" questions dealt specifically with the operation of margining and clearing arrangements and steps that might be taken to ease or speed the flow of cash across exchanges and among institutions and to remove potential ambiguities in credit transactions among clearinghouses, clearing members, and banks concerning who must pay and when. And finally, a number of questions on "Credit

Facility Characteristics" addressed concerns about specific lending arrangements, including collateral control procedures, financing of options, lines of credit, and the overall effect of the stock market crash on terms of lending. The results of these interviews are summarized below.

Information to Support Credit Decisions

The New York bankers interviewed stated that they are selective in their customer base. Their securities customers comprise a limited number of large, well-established institutions, as well as some major regional firms and specialists. The Chicago banks generally had a somewhat broader customer base. All the banks, however, asserted that maintaining close knowledge of, and relationships with, their customers is the keystone for their lending and credit policies. In this regard, all the bankers interviewed believe that they have ample information to support their credit decisions, that is, they "know their customers." They obtain this knowledge through the process of screening prospective clients, monitoring financial reports, reviewing capital and management structure, routinely reviewing data on items such as online deposit records, credit records, and balance sheets from their customers. When additional or more current information is needed, they call the customer directly. In a crisis, the ability to contact key personnel in the borrowing institution is deemed vital.

Because of customer-bank relationships, the lending institutions do not attach much value to additional information, such as daily variation margin pays and collects data, that might be supplied by futures exchanges. Pay and collect data already are available to the Chicago settlement banks but are not viewed as terribly useful in credit decisions involving large customers. No banks routinely get margin surplus and deficit data or aggregate position data from the exchanges, but they may seek it selectively from customers. While, in some circumstances, the ability to confirm positions through access to a third party source might be useful, it was not deemed necessary.

Although the banks feel that they have adequate information on their customers to make credit decisions, this information did not include full knowledge of individual customers' aggregate exposures across markets. Most of the banks either have, or are seeking to install, procedures for monitoring the bank's aggregate exposure to any one customer, but such systems typically do not track intra-day exposures. Intra-day risk monitoring requires the ability to track positions during the day, which is now done

in only a few markets. Integration of global credit exposures also is done on a less regular basis; several banks noted that information on international position exposures could be obtained through foreign office contacts with a delay of a few hours or a day. The banks are becoming more vigilant in this direction; New York banks, in particular, emphasized concerns about increasing global involvements and efforts to monitor such exposures. For some, global exposures and exposures in non-regulated markets outweigh concerns about domestic futures, options, and securities activity.

The investment banking firms that were interviewed also confirmed the importance of customer relationships in determining credit decisions. These firms may attach somewhat more importance than banks to margin pays and collects and other information that might be provided by the exchanges. Nonetheless, they indicated it would be difficult to implement formal cross-market sharing systems that provide information on a timely basis. Banks, securities firms, and clearinghouses expressed concerns about confidentiality of a formal arrangement; they think that, for competitive reasons, customers and financial institutions might not like to have information shared. A concern was also expressed that current intraday information might be interpreted inappropriately if recipients lacked the expertise and historical background for analysis. Some indicated they would have difficulty handling large volumes of daily data.

Clearing and Settlement System Characteristics

The heavy volume of transactions in October highlighted problems that occur when flows of cash through the system are imperfectly coordinated. Institutions were asked about possible steps to alleviate discrepancies in timing or to reduce the need for funds transfers. Specifically, views were solicited on the substitutability of capital for margins, the timing of variation margin pays and collects, benefits and costs of cross-margining proposals, and systems of netting cash flows. Respondents also commented on the clarity and possible ambiguities in contractual relationships between clearing organizations and clearing banks and between clearing firms and their customers. The importance to creditors and other market participants of knowing that daily margin settlements of the clearing houses are final before the markets open and the adequacy of Fedwire operations for this purpose were discussed.

Substitutability of Capital and Margins. Capital is not viewed by market participants as a substitute for margin deposits or collateral. Both capital and margin play an

important role. Banks and investment houses emphasized that while capital is the ultimate buffer against losses and a major factor affecting credit decisions, it is used to support a variety of activities. Margin deposits or collateral, on the other hand, apply to specific transactions and are a first line of defense against counterparty risk. Margin is not subject to competing claims, and is typically more liquid than capital.

Some of the New York institutions expressed the view that margin on futures and options should be higher. Some said that they set customer futures margins consistently higher than the minimum set by the exchanges; nonetheless, they did not see a need for federal regulation of futures margins.

Timing of Variation Margin Pays and Collects. All the organizations agree that coordinated timing of daily and intra-day margin collections would be helpful. Release of margin collects as well as demands for pays intra-day also is favored. Several changes introduced by the exchanges since October move in these directions. Currently, the CME clearinghouse and the BOTCC make regular daily and intra-day settlements that are coordinated in time. The CME has altered its intra-day practices so that gains are paid out at the time losses are collected. BOTCC already had such a policy. At least one investment bank believed that intra-day distributions by the clearinghouses should be based on the most up-to-date information available to avoid affecting the security of the clearing system. The Options Clearing Corporation's (OCC) daily settlements do not occur until 9:00 a.m., two hours after those of the CME and BOTCC. This discrepancy, however, was not viewed as a significant problem by banks.

Cross-margining and netting proposals. There was less uniformity in views on the benefits and costs of cross-margining, and methods of implementing such proposals. The prospect of lower original margin requirements for a combined futures/options position through cross-margining is viewed as a potential benefit by some clearing organizations and banks. Chicago institutions noted that, in the aggregate, positions might increase in response to reduced margin costs. Possible increases in clearing risk are a concern in cross-margin arrangements.

Some advocate cross-margining as a method of increasing the ability of lenders to finance margin payments; the OCC, for example, suggests that the current cross-margining proposals, which apply to posting of original margins, would create a position that banks can use as collateral. Others noted, however, that cross-margined positions stand as security to the clearing organization. The positions would

be double-pledged if banks relied on them as security for lending.

The futures clearinghouses that were interviewed believe that proposals for cross-margining do not address the problem of funding options positions and the issue of the differential cash flows generated by basic differences in margining systems of futures and options. Cross-margining, as currently described, would reduce only original margin requirements. Even in a unified options/futures clearinghouse, there would be a need for daily margin flows where a trader had a long option coupled with a short futures position, for example. The futures clearinghouses would like to see options markets shift to a margining system similar to that for futures in terms of providing daily cash flow to cover changes in market values. The OCC feels option market participants would oppose such a change. Investment banks also noted that cross-margining does not relieve the cash flow differences between derivative and cash stock positions.

None of the respondents provided concrete suggestions for implementing other netting arrangements to reduce cash flows. While the concept of netting is appealing, it requires coping not only with differences in settlement time frames and different procedures applicable in futures, options, and securities markets, but also with a host of legal questions associated with bankruptcy treatment of netting agreements.

On the issue of unified clearing in general, most of the organizations questioned the utility and feasibility of establishing a single clearing organization. Existing clearing organizations embody considerable expertise geared to the specific needs of the various stock, futures, and options markets. In addition, a single clearing organization would lead to a concentration of risk which currently is diversified across multiple clearinghouses. Some offered the opinion that many of the benefits of unified clearing could be obtained by operating within the existing structures to improve information sharing and to coordinate funds flows and other operating procedures.

<u>Clarifying Ambiguities in Contractual and Lending Relationships</u>. The clearinghouses are working on legal documents that more clearly delineate their responsibilities and those of the settlement banks. For example, the OCC already has an arrangement that, unless the bank notifies the clearinghouse otherwise, the bank is committed to providing funds to cover margin settlements. Bankers view this as a question that can be resolved by agreement between the banks and the clearing organizations.

Two investment banks identified as an important issue the ambiguity surrounding a futures clearing member's obligations to its customers for the payment of margin funds in the absence of the receipt of funds from the clearinghouse. One firm questions whether it is responsible for the clearinghouse to its customers and is reviewing its contracts with its customers as it relates to this point.

Finality of Margin Settlements Prior to Market Opening. There was strong agreement among most of those interviewed that "finality" of the settlement process before the opening of trading was critical to the integrity of the system. (The OCC, which settles after the opening of trading, did not feel pre-opening to be critical, but did want "finality" early in the day.) Otherwise, clearinghouses could face potentially large financial exposures.

Market participants in Chicago stressed the importance of access to Fedwire in this process, with several advocating earlier opening of the wire. Clearinghouses tend to favor routine earlier opening, while banks viewed occasional (as needed) early openings acceptable, perhaps contingent upon exceeding pre-determined price or volume parameters. The Chicago institutions suggested a need to better educate the New York bankers about the futures clearing process and the importance of having knowledgeable persons available to make credit decisions early in the day. Several pointed to the inaccessibility of New York bankers on October 20 prior to the opening of the futures markets.

New York banks had little to say about the question of "finality," while the investment banks viewed "finality" as very important. The issue of altering Fedwire hours generally was not viewed as critical by New York respondents.

Credit Facility Characteristics

The commercial banks reported that their own credit policies and terms of lending have not changed significantly as a result of the stock market turbulence, and the investment banks confirmed that their borrowing arrangements with large banks were largely unaffected. But several institutions remarked that foreign banks and small regional banks have cut back lending to securities firms since October. Some of the interviewed banks discussed changes in their internal procedures for assessing credit exposures, including more formal global communications structures and developing comprehensive measures of risk exposure to individual customers.

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None of the respondents saw any benefit of increasing reliance on "committed" versus "uncommitted" lines of credit. Committed lines generally have "material adverse change" clauses which may permit the creditor to escape its commitment during periods of stress. The availability of credit will ultimately depend on the lender/customer relationship.

Two credit areas where some of the banks expressed dissatisfaction with current systems are collateral pledging arrangements and financing of options positions. Each of these is discussed briefly below.

Collateral Control Procedures. Collateral for secured loans may be held in a number of ways. It may be delivered to the bank lender or a third party custodian. It may be held at the Depository Trust Company (DTC) on a book entry basis and transferred from one member's account to another upon instruction. Or, it can be maintained in a segregated account at the borrower's office under an agreement-to-pledge arrangement (AP). With AP arrangements, creditors usually conduct periodic audits of the securities firms' procedures to ensure the adequacy and safety of the pledged collateral.

Agreement-to-pledge arrangements are quite common. From the borrower's perspective, AP is preferable because it costs less than pledging collateral through DTC. Also, when stocks or securities are put into a pledge account at DTC, they cannot be released without the permission of the lender. A firm that finances equity holdings (its own inventories or customer debits) through DTC pledging worries that the lender will not release the stocks in time for the securities firm to get them to the next party.

Most banks indicated that competitive pressures and cost considerations necessitated reliance on APs and recognized that a change to require delivery of collateral would be destabilizing during a crisis. If one bank suddenly demands delivery of collateral, others would do the same and the result would be a "disaster." Some of those interviewed suggested that the Depository Trust Company may not have the capacity currently to handle all collateral should lenders require it.

While banks recognized the needs served by AP arrangements, several indicated dissatisfaction with these arrangements. Auditing the status of collateral is difficult and, thus far, no court has ruled on the validity of the creditor's lien on collateral under APs. Several banks indicated that if they have a concern about the counter-party, they will not use this system. One bank

reported that, because of these legal ambiguities, it has over time reduced the volume of its AP lending.

One investment banking firm identified problems surrounding the original margin deposits of registered investment companies as an important issue. Currently, such an investment company is required to post original margin in a bank or other third party custodial account, and the FCM must provide funds from its own account to meet the customer's margin obligations with the clearinghouse. These third party custodial requirements reportedly create liquidity problems in volatile situations, and it is not clear how such accounts would be treated should the FCM go bankrupt. This investment banking firm suggested review of SEC regulations prohibiting investment companies engaged in futures trading from depositing original margin with their FCMs.

Financing Options Positions. Bankers, other than two Chicago banks, are reluctant to extend credit for options positions because of the volatility of these instruments and ambiguities in the Uniform Commercial Code and bankruptcy laws about their status as collateral. Most of the banks stated they generally do not finance options positions for these reasons and one bank indicated, in addition, that it did not have the expertise to dispose of the collateral in the event of defaults. The question of obtaining additional financing for options was not seen as a regulatory issue, but as a legal question of how to establish a "perfected security interest" in an option instrument.

APPENDIX D

CLEARING AND SETTLEMENT RECOMMENDATION

I. Clarification of Clearing and Settlement Obligations

The Working Group believes that the reduction of uncertainty concerning the obligations of participants in the clearing and settlement process and concerning the ability of such participants to discharge their obligations is an important improvement that can be made to address the impact of the stock market decline of October 1987 upon clearing and settlement mechanisms. Both the Securities and Exchange Commission (SEC) and Commodity Futures Trading Commission (CFTC) reports on the October 1987 market events identify instances in which margins owed or payable on options and futures positions were not paid within normal time frames. These delays have led some market participants to question previous assumptions concerning the obligations of various parties in the settlement chain. While the issues they raise are, in many instances, at odds with settled law and practice, the Working Group believes that efforts should be made to establish a clear, uniformly held understanding of the obligations of each party in the settlement process. The Working Group therefore recommends that steps be taken to confirm existing law and to dispel ambiguities in the following areas:

A. <u>Clearing banks' obligations to honor their confirmations of variation payments</u>. The SEC and CFTC have recommended that contracts between clearing organizations and their clearing banks be clarified to assure certainty that bank confirmations of payments to the clearing organization are irrevocable. A further point that may require clarification is the extent to which clearing banks that confirm variation margin payments for defaulting customers may claim rights to original margin deposits held by the clearing organization on behalf of such customers. The Board of Trade Clearing Corporation, Chicago Mercantile Exchange Clearing House and the Options Clearing Corporation are currently reviewing draft agreements designed to afford greater clarity as to the relationships between clearing banks and clearing organizations.

<u>Action items</u>:

The CFTC and SEC should monitor the options and futures self-regulatory organizations' (SROs) progress toward finalizing revised settlement agreements with their clearing banks.

The Working Group supports conclusion of agreements which specify that payment obligations are final once confirmed.

B. Clearing organization guarantees and timely payment. Generally, clearing organizations are required to make variation margin payments without regard to whether they have "received" variation payments from clearing firms. It is important to confirm that clearing organizations guarantee payment of profits and losses accrued as of each day's settlement. Such payments should ordinarily be backed by final confirmations received by futures clearing organizations prior to the opening of trading or, in the case of the Options Clearing Corporation, prior to 9:00 a.m. Central Time. In any event, such payments are guaranteed by the clearing organization and therefore do not depend upon the clearing organization's receipt of funds from the clearing firms from which such funds are owed. Further, clearing organizations should release such payments promptly in accordance with their rules and by-laws.

Action items:

The SEC and CFTC should confirm that futures and options clearing organization guarantees assure payments owed collecting firms in accordance with their rules and that such payments should be released timely in accordance with such rules and by-laws.

Clearing organizations should review their by-laws and rules in this regard and consider whether further specificity concerning payment guarantees and timing of those payments would be desirable.

II. Facilitate Timely Payments

The SEC and CFTC Reports on the October Market Break describe the crucial role of payment systems in securities and futures markets. Those markets depend on payment systems to move funds and provide financing to meet clearing member and clearing organization payment obligations within established time-frames. Experience during the market break indicates that enhancements to existing payment systems to assure coordinated intermarket payments should be pursued.

The Working Group believes that assurance of the full and timely satisfaction of clearing and settlement obligations can be fostered by increasing the coordination of settlement processes, the information available to market participants concerning their payment obligations and other payment-related data, the accessibility of wire transfer systems, and the financial resources available to clearing organizations to fulfill their guarantee obligations in the event of a clearing firm default. The Working Group therefore recommends that actions be taken in the following areas to increase the ability of market participants to fulfill their payment obligations on a timely basis.

A. <u>Review of arrangements to support payments by clearing members to settlement banks</u>. Clarifying the obligation of settlement banks to honor commitments to clearing organizations is just one step in the process and must be supported by a review of the arrangements in place to support the making of such commitments. During times of stress, settlement banks may be called upon early in the morning to "confirm" to clearing organizations large payments by clearing members. In the absence of good funds from those firms on hand at the bank, the settlement bank may determine that the payment called for exceeds its prudential limit for unsecured transfers and therefore refuse to "confirm" the payment before the market opens. In this event, consequences which could ensue include unwarranted liquidation of a firm's positions or continued trading by a firm which may later be found to be insolvent. Mechanisms should be established that allow clearing firms to be assured that their payments to clearing organizations will be "confirmed" and that provide comfort for banks to make the desired confirmations.

<u>Action item</u>:

Federal regulators should review current facilities and consider what further prudential measures are necessary, including requiring that the relevant market participants have secure facilities in place that will support large payments to clearing organizations.

B. <u>Increase the liquidity and security of clearing organizations</u>.

1. <u>Review the adequacy of clearing organization guarantee funds, and where appropriate, increase member contribution requirements</u>. Futures and securities clearing organizations collect from and

pay to clearing members significant dollar amounts each day (routinely ranging from $50 million to $500 million in the aggregate and, on particularly volatile days, exceeding $1 billion). Futures and securities clearing organizations, generally, are obligated to make those payments regardless of member defaults. An important back-up source of funds (in addition to individual member margin deposits) in the event of default is the clearing organization's guarantee fund (also known as clearing or participants' fund), to which clearing members are required to contribute.

Action item:

Clearing organizations should review the adequacy of clearing member guarantee fund contributions, in light of other financial protections and system safeguards. Federal regulators should assess the results of these reviews.

2. Enhance the liquidity of guarantee funds. Futures and securities clearing organizations currently maintain high proportions of their guarantee funds in letters of credit and other non-cash interests. Because of the potential urgency of demands for cash flows generated in volatile markets, the immediate availability of sufficient clearing funds in cash and cash-equivalents in conjunction with credit lines to redress the expected counterparty risk assumed by the clearing organization under the traditional clearing organization guarantee is desirable.

Action item:

The SEC and the CFTC should encourage securities and futures SROs to explore the desirability of converting portions of existing securities and futures clearing organizations' guarantee funds to cash or cash equivalents on an incremental basis.

C. Increase the availability of payment-related information. The Working Group believes that in addition to assuring that market participants have a clear understanding of their payment obligations, measures should be taken to assure that market participants have access on a timely basis to information concerning the specific size and nature of those obligations so that they can make appropriate arrangements to fulfill them. Critical to reducing

risks and increasing confidence in the stock futures and options markets are efforts to monitor clearing firm risk more effectively on a coordinated basis. During the market break, clearing corporations effectively communicated on an ad hoc basis regarding firms suspected of being in financial difficulty. Nevertheless, the Working Group strongly supports the development of regularized systems which allow all clearing corporations to identify the system-wide payment obligations and position exposures of all clearing firms. The Working Group recommends that information systems be enhanced in three key respects to increase the timeliness and availability of margin and position data.

1. <u>Maximize cross-market input into the existing futures pay, collect, and margin surplus data system</u>. The Board of Trade Clearing Corporation (BOTCC) has in place a system for the routine, electronic exchange of pay and collect data which will include all futures clearing organizations and, when formatting issues are resolved, will also include Options Clearing Corporation (OCC) data pursuant to agreements already in place. The addition of National Securities Clearing Corporation (NSCC) data also is under discussion. Inclusion of margin surplus and deficit data in the pay and collect system is being explored as well. Appropriate securities data should be integrated into this system to maximize its usefulness as a tool for monitoring inter-market exposures.

<u>Action items</u>:

Procedures should be implemented fully for centralized collection and availability of pay and collect information.

Subject to appropriate control, cost, confidentiality and oversight procedures, NSCC and OCC should be encouraged to provide data to the BOTCC pay and collect system. BOTCC should be encouraged to develop appropriate software to accommodate such data.

Users of the system should consider, collectively, how the system should be operated and paid for.

2. <u>Enhance trade matching capacity to supply increased data concerning intra-day exposures and foster development of on-line trade matching systems</u>. The Working Group believes that the capacity of market participants to satisfy the large cash demands generated in volatile markets such as occurred in October 1987 may be materially affected by their ability to monitor their exposures on a daily and intra-day basis and consequently to ascertain their payment obligations on a timely basis. In addition, such data should enhance the security of clearing organizations by permitting them to respond to intra-day position changes that increase financial risk and could assist lenders in making earlier credit assessments, potentially reducing the credit judgments required to be made at the time of daily margin settlements. Futures contract markets and options exchanges currently complete initial trade comparisons on a same-day basis. Securities and over-the-counter ("OTC") trades are compared on a same-day and a next-day basis. The BOTCC currently has intra-day trade matching systems that match trades at 11:30 a.m. and 1:30 p.m. Central Time, as well as at the close of trading each day; the Chicago Mercantile Exchange (CME) also has developed intra-day trade matching capacity. The SEC has recommended that the New York Stock Exchange, American Stock Exchange, and the National Association of Securities Dealers accelerate the development of systems to compare all trades on the trade date. That process has already begun.

<u>Action items</u>:

<u>Near Term</u>: The SEC, should continue to encourage affected national securities exchanges and the National Association of Securities Dealers, to establish systems and procedures necessary for same-day trade comparison of inter-dealer corporate equity transactions.

<u>Far Term</u>: The SEC and CFTC should foster progress toward on-line trade matching systems at securities, futures and option exchanges.

3. <u>Increase availability of securities position data</u>. The CFTC currently receives on a daily basis for each futures market data detailing the aggregate positions of each clearing firm and the positions

of individual traders that exceed specified reporting levels (large traders). Similarly, the securities SROs have access to data for broker-dealer proprietary positions. In addition, the SEC has recommended to Congress establishment of a comparable large-trader reporting system for the securities markets to identify customers engaging in large securities transactions. OCC position data, for which reporting systems are currently being developed, could be used in the initial phase of such a system. Such data and other available securities data on cash market positions eventually could be incorporated in the position data base currently under development by the CFTC to produce aggregate position data for clearing firms and large traders in securities as well as futures markets. Such data would be useful in analyzing the combined risk positions of firms across markets on an "as needed" basis in periods when augmented surveillance is desirable. Consideration must be given to the specific data to be collected; controls surrounding that data to address, among other things, confidentiality concerns (particularly with respect to foreign investors); and allocation of costs associated with collecting and maintaining position data.

Action items:

Near Term: Immediate development of a trial reporting system of large-trader data for OCC positions, perhaps through incorporation in the existing CFTC database with direct SEC access;

Far term: Consider legislative changes to the securities laws necessary to obtain large-trader data.

D. Arrangements to support payments

1. Increase coordination of margin calls and settlements. The Working Group believes that the effectiveness of clearing and settlement systems is enhanced by the use of settlement procedures that occur at consistent times and that use daily intra-day margin calls to reduce the volume of funds required to be transferred at settlement. Since October 1987, Chicago futures clearing organizations and OCC have increased their use of intra-day margins calls. Currently, BOTCC and CME

daily and intra-day settlements occur on the same schedule. Daily morning settlements occur at 7:00 a.m. Central Time and intra-day calls are made on a routine basis by both clearing organizations at 2:00 p.m. Central Time. OCC's daily settlement, however, occurs at 10:00 a.m. Central Time. The CFTC's Financial Follow-up Report recommended increased use of routine intra-day margin calls to reduce the burdens of effecting large daily margin settlements in volatile markets. Particularly in volatile markets, predictable intra-day margin flows, coordinated across markets, and consequent reduction in the size of daily settlements, would be facilitated by the use of an intra-day call on a consistent basis in options and futures markets. The SEC Division of Market Regulation's Report on the October market break urged OCC to review its pay/collect system, including the adequacy of its variation margin collection system. The Working Group recommends that the timing of settlements on the BOTCC, CME and OCC be harmonized to facilitate orderly cash flows and credit decisions.

Action items:

The SEC and CFTC should encourage OCC and commodity clearing organizations to complete their system reviews with a view to harmonized settlement time frames.

In particular, OCC should ensure that its revised procedures for intra-day margin calls to the extent used are coordinated with intra-day margin calls of futures clearing organizations.

2. Increase Fedwire availability, at least in extremely volatile markets, and coordinate operations during banking or market center holidays. The Fedwire currently opens at 7:30 a.m. Central Time, a half hour after daily settlement confirmations are due on the BOTCC and CME. Although clearing banks generally confirm margin payments without reliance upon Fedwire funds transfers prior to the market's opening, a number of market participants have expressed the view that earlier availability of Fedwire transfers could help assure the availability of funds in circumstances in which credit extensions

of unusual magnitude are required and could reduce daily settlement pressures. In addition, bank holiday schedules vary among market centers and may not coincide with trading market holiday schedules.

Action items:

The Federal Reserve Board should explore earlier opening of the Fedwire as needed during volatile markets. Earlier opening of the Fedwire would be useful only to the extent that knowledgeable officers at banks are available to make credit decisions and approve funds transfers. Futures and securities SROs should establish arrangements with member firms to ensure that early opening procedures for Fedwire can be effectively used.

SROs, regulators and market participants should review and augment existing mechanisms to assure smooth market operations when banks in one market center are closed but are open in other market centers and when markets are open but banks are not.

3. Establish framework for periodic meetings of clearing organizations, clearing banks, federal regulators and SROs. A round-table discussion forum, which includes representatives of the BOTCC, CME, OCC, NSCC and the Depository Trust Company, clearing banks, securities SROs and federal regulators, has been established to address means of enhancing coordination of settlement processes. The monitoring coordination group, which is composed of all securities clearing organizations, also met recently in Washington concerning measures to enhance clearing agency oversight of members and coordination with marketplace SROs. Periodic meetings, including additional securities SRO participants, to discuss coordination of and assure appropriate contingency planning with respect to settlement processes, should be encouraged.

Action item:

The Working Group should encourage establishment of a regular schedule of meetings among participants in futures and securities clearing and settlement processes and federal regulators.

III. Explore Methods to Reduce Cash Flows and Simplify Settlement Systems

The Working Group believes that the above measures to increase the certainty and reliability of clearing and settlement payment systems should be taken on a priority basis. These measures are designed to ensure that existing systems operate effectively even in volatile markets. The Working Group has also reviewed proposed measures to reduce the size of cash transfers required to be made in volatile markets and to further coordinate clearing and settlement systems. The Working Group believes that efforts to explore measures that could reduce the size of net cash flow obligations should be a priority. Although an important goal, the Working Group is cognizant of the many difficulties in increasing coordinated clearing of related stock, futures and options products. These difficulties range from differences in margining procedures and settlement time-frames to inconsistent treatment of securities and futures for bankruptcy purposes. Consequently, the Working Group recommends that measures which address possible structural modifications in existing systems and that could potentially reduce the cash flows through settlement systems and simplify clearing and settlement processes be explored to provide a basis for determining whether more profound systems changes are appropriate. The Working Group recommends that the following actions be taken to address the potential costs and benefits of structural modifications of existing clearing and settlement systems:

A. Explore the utility of cross-margining, through a pilot program limited to non-customer funds. Current cross-margining proposals are designed to reduce initial margin requirements but do not reduce the necessity for variation margin transfers. However, as discussed below, modification of option margin systems to resemble futures-style margin systems could permit cross-margining systems to further reduce cash flows. Alternatively, mechanisms for facilitating lending against the excess value of long options positions could also generate cash for such purposes. A trial cross-margining program is appropriate to permit evaluation of the capacity of cross-margining systems to simplify payment structures and reduce cash flows in a controlled environment.

Action items:

Near Term: CFTC and SEC should expedite consideration of current rule proposals before them which would establish a pilot program for cross-margining of house positions cleared by the

Intermarket Clearing Corporation for the Philadelphia Board of Trade, and the New York Futures Exchange.

Other clearing organizations should be encouraged to consider, and the SEC and CFTC should facilitate, cross-margining proprietary position pilot programs for products such as stock index options and futures.

The CFTC should evaluate whether there are mechanisms to permit floor traders and market makers to participate in cross-margining pilot programs consistent with its segregation rules and, if not, the desirability of changing those rules.

<u>Far Term</u>: The SEC and CFTC should work with the Securities Investor Protection Corporation (SIPC) and other federal agencies, as necessary, to resolve relevant legal issues, and to determine what legislative changes are necessary and desirable to facilitate a broader cross-margining program.

B. <u>Explore use of futures-style margin settlements for options</u>. A number of market participants interviewed by the Working Group staff stated that cross-margining systems would have limited utility in reducing cash flows because futures gains and losses are paid on a daily basis but securities and option gains and losses are not. For example, although the changes in clearing margins need not necessarily be passed on to customers, buyers of options could be permitted to margin the premium. If futures-style margining were adopted, all option positions would be marked to the market, and gains and losses on those positions would be transferred at least on a daily basis. Any options margin system which transfers cash daily would significantly change current contractual obligations and may pose new risks. Currently, the purchaser of an option who does not use the value of the option for collateral does not pose any financial risks to clearing organizations or clearing members because the entire premium due with respect to that position is paid in full the morning after acquiring the option. Until the option holder exercises the option (to buy or sell), the holder has no obligation with respect to

that position. Although a futures style system would change this and also would alter the pricing of options, such a system could make cash flows between options and futures symmetrical and thus could have benefits.

Action item:

> The practical impediments to and risk implications of modifications of option margin systems should be studied in light of potential liquidity gains that might be achieved. This study should focus on the desirability of experimenting with futures-style margining of options as part of the development of pilot programs for coordinated clearing of professional positions in stock index options and futures products.

C. Explore means of netting cash flows on a contractual basis. To a limited extent, netting occurs on the basis of clearing firms' use of a single bank as the settlement bank for more than one market in which such firm maintains offsetting positions.

Netting of settlements among clearing organizations may raise questions in the event of member defaults. Among other things, clearing organizations, clearing members and their bankers would need certainty concerning security interests to protect against financial losses due to member defaults and other questions with respect to the various rights of the parties to the netting arrangements. Nevertheless, the risks and benefits of netting cash flows on a contractual basis should be studied.

Action item:

> The Working Group should encourage the SROs, in conjunction with clearing banks, to explore approaches to netting of payment obligations.

D. Shortening the five-day settlement time frame for routine transactions in corporate equity securities. Transactions in equity securities generally entail three distinct contracts: two contracts between broker-dealers and their customers -- the buyer, the seller and their broker-dealers -- and another contract between the buying and selling broker-dealers. Settlement between institutional customers and their broker-dealers generally occurs at securities depositories; settlement of contracts between

broker-dealers generally occurs through netting at clearing corporations (excess delivery or receipt obligations are settled through book-entry movements at securities depositories with payments at the clearing corporation).

Currently, transactions in corporate securities settle five business days after the trades are executed. This time-frame allows completion of tasks associated with settling those trades: inter-dealer trade comparison and, through stock clearing corporations, inter-dealer netting of delivery and payment obligations; dealer confirmation of trade terms to investors (particularly money managers acting on behalf of institutional investors); money manager acknowledgement of the trade and issuance of instructions to the institution's custodian bank concerning the delivery of securities and payment of funds; and settlement of the transaction between the dealer and the custodian bank through securities depositories. The vast majority of institutional trades in corporate securities (exceeding 90%) now settle within the five-day time frame, primarily because parties to these trades routinely use securities depository facilities for confirmation, affirmation and book-entry settlement of dealer-institutional transactions.

Establishing an earlier settlement time frame depends, among other things, on the ability of dealers, money managers and custodian banks to communicate trade terms and settlement instructions and respond to those communications quickly. Because many custodian banks and money managers access securities depositories through other institutions, communicating confirmation, affirmation and settlement data often requires two to three days. Accordingly, any significant reduction in settlement time frames would entail costs and changes to operational procedures but these costs and changes should be evaluated relative to the potential benefits of reduced settlement time-frames.

Action item:

> The New York Stock Exchange, National Association of Securities Dealers, the American Stock Exchange, clearing organizations and market participants should identify costs and benefits of

an earlier settlement time-frame and identify how a shorter time-frame can be implemented consistent with reducing clearing system exposure and facilitating coordinated clearing of equities, options and futures.

E. <u>Integrated clearing of stock and related options and futures products</u>. Currently, options contracts are cleared and settled at OCC, futures contracts and futures options con-tracts are cleared and settled at clearing organizations affiliated with or designated by contract markets trading specific futures products; and securities transactions are cleared and settled at interfaced clearing corporations and securities depositories. Existing clearing organizations serve the needs of the stock, options, and futures markets and allocate default and credit risks differently to meet the requirements of those markets.

Consolidation of clearing systems would raise substantial questions regarding CFTC/SEC customer segregation requirements and bankruptcy law treatment of commodities and securities positions. For example, SEC segregation requirements may have to be augmented or CFTC requirements diminished in order to integrate the two systems.

However, consolidation of stock and derivative market clearing organizations may offer potential for reduced cash flows and simplified payment and operational procedures. Whether consolidation would reduce risk through central control of positions or increase risk because of concentration of positions is unclear. Asynchronous settlement time-frames, different margin procedures and distinct clearing organization responsibilities with respect to issuer-based as opposed to exchange-based instruments, as well as concerns for competition among clearing organizations, raise questions as to the cost-effectiveness of consolidation of stock and derivative clearing facilities. Consolidated clearing of related futures and options positions may raise somewhat different questions.

<u>Action item</u>:

Futures and securities clearing organizations should identify costs and benefits of integrated clearing and determine how integrated clearing could be achieved. This analysis may be facilitated by data generated by any

cross-margining or netting pilot programs established by futures and option clearing organizations. The SEC and CFTC should monitor the progress of these studies and address public interest and competitive issues that any proposals for integrated clearing may raise.

IV. Refine Relevant Legal Frameworks

The Working Group also identified several aspects of existing legal frameworks that should be reviewed to assure that a lack of uniform or coordinated legal standards does not increase market uncertainty or reduce the security of clearing and settlement systems.

A. Develop bankruptcy framework for FCM/broker-dealers. Currently, different bankruptcy frameworks apply to insolvencies of FCMs and those of securities broker-dealers. In view of the substantial intermarket trading activities of certain dual registrants, a uniform or integrated bankruptcy framework for such entities may be desirable. Development of such a bankruptcy framework for dual registrants could be accomplished through coordinated rule-making by the SEC and the CFTC if the SEC were granted rule-making authority comparable to that of the CFTC to define customer property and to determine other matters relevant to broker-dealer bankruptcy distributions.

Action item:

The CFTC and SEC should review existing bankruptcy laws and regulations to formulate a coordinated approach toward FCM/broker-dealer bankruptcies and identify areas requiring legislative action.

B. Consider harmonizing state commercial laws to establish uniform transfer, delivery and pledge requirements for options and uncertificated securities. The laws of the various states do not have uniform requirements for transfers and pledges of options, and transfers and pledges of certificated and uncertificated stocks. State requirements are set forth in commercial statutes (adapted from Articles 8 and 9 of the Uniform Commercial Code) that vary significantly from jurisdiction to jurisdiction. Approximately 25 states do not have statutory standards recognizing uncertificated securities. Judicial interpretation of those laws also varies among states, and determining which law to apply in multi-state transactions can often be difficult. If the substantial legal obstacles

can be overcome, investors, market professionals and their lenders should have a single, clear set of rules for the transfer and pledge of securities, similar to those being developed by the United States Treasury Department for trans-actions in United States Government Securities.

Action Item:

> Consideration should be given to whether legislation authorizing the appropriate regulators to establish federal rules for the transfer and pledge of stock and securities options would be desirable.

APPENDIX E

Market Reform Actions Taken (or Planned) by Federal Agencies, Self-Regulatory Organizations, Clearing Agencies, and Market Participants as of May 16, 1988

I. Federal Agencies

A. Securities and Exchange Commission (SEC)

Actions by the SEC--Extensive Study of the Market Break and Recommendations for Market Reform

- On February 2, 1988, the SEC published a staff study prepared by its Division of Market Regulation entitled *The October 1987 Market Break*. This study detailed, among other things, the role of program trading in the market break; the capacity of the self-regulatory organizations (SROs) to meet the volume and other demands placed on their trading systems by the heightened volatility; and an analysis of market break related investor complaints. This study also contained recommendations for market reform on both an individual exchange basis and across all markets.

- Thereafter, pursuant to recommendations made by the Commission and staff, the Commission engaged in a continuing dialogue with the SROs to encourage SRO action in the following areas:

  - increased operational capacity through order handling system enhancements;

  - increased market liquidity through new specialist capital requirements and the development of new trading techniques;

  - increased financial integrity of market participants through, for example, increases in derivative market margins and reassessment of the manner and timing of variation margin calls;

  - improvements in post-execution trade processing; and

  - enhanced clearing agency safeguards against member default.

Actions by the SEC--Coordination Efforts

- o Coordination of inter-market issues with the Commodity Futures Trading Commission, Federal Reserve Board, and the Department of the Treasury.

- o Contingency planning with the other regulators and the SROs.

- o Coordination of international issues with foreign regulators; meetings with officials of the Japanese Ministry of Finance, the Tokyo Stock Exchange (February 1988), the Department of Trade and Industry, Securities Investment Board, and the International Stock Exchange of the United Kingdom and the Republic of Ireland Ltd. (March 1988) to discuss the global impact of market volatility.

Actions by the SEC--Surveillance Data

- o The Commission believes that the collection and dissemination of market, information related to program trading is necessary for the detection of frontrunning (both intra- and inter-market) and is of vital importance in maintaining market integrity. Toward this end, consideration is being given to proposals that would require securities traders to report large transactions to the Commission.

- o The SEC has also suggested to the New York Stock Exchange (NYSE) that it give consideration to augmenting its audit trail procedure to obtain by electronic means the identity of member firms' customers. Currently, the NYSE audit trail tracks the time of stock executions and the brokers involved in the trade, but requests for customer names must be made separately to member firms.

Actions by the SEC--Systems Enhancements

- o The SEC has reviewed plans by the securities SROs to increase the capacity of their order routing and execution systems to handle the volume of message traffic experienced on October 19 and 20.

- o The Commission is reviewing stress tests of SRO order routing and execution systems.

B. Commodity Futures Trading Commission (CFTC)

Actions by the CFTC--Financial Integrity of Futures Markets

- o Since the October market break, the CFTC has completed four studies of futures activity during October, 1987; made recommendations to futures SROs concerning program

enhancements to strengthen protections in volatile markets; monitored SRO progress in responding to the CFTC recommendations; initiated improvements in its own data collection processes and data bases; coordinated and consulted with other federal regulatory agencies in addressing contingency planning and other post-market break responses; and communicated with foreign regulators to promote information-sharing and cross-border financial surveillance.

Post-Market Break Studies

- Following October 19, the CFTC thoroughly assessed the operation of regulatory and self-regulatory financial protection systems during the market break. The staff's preliminary conclusions were summarized in the Interim Report on Stock Index Futures and Cash Market Activity During October 1987, which was prepared on an expedited basis and presented to the Commission on November 9, 1987.

- Subsequently, the CFTC developed additional data concerning the financial impact of the October market break upon futures firms and futures customers. The staff's findings based upon this data were summarized in its Follow-up Report on Financial Oversight of Stock Index Futures and Cash Market Activity During October 1987. Although the CFTC staff concluded that the financial safeguards of the futures markets operated effectively during the market break, aspects of financial systems that could be strengthened to provide added protection against extreme volatility were identified.

- Separately, the CFTC staff reviewed October 20, 1987 trading in the Major Market Index futures contract on the Chicago Board of Trade and found no reasonable basis for concluding that manipulative activity had occurred.

- The CFTC staff's Final Report on October 1987 futures market events was issued in January 1988. In addition to providing a detailed analysis of futures trading activity during the relevant period, the Final Report set forth recommendations for additional system enhancements to facilitate more effective financial and market surveillance.

Post-Market Break Recommendations

- While the CFTC's staff reports reflect that existing regulatory and self-regulatory protections functioned effectively during October 1987, the CFTC has carefully reviewed SRO programs as well as its own systems, to identify areas in which each can be strengthened to assure that it remains effective even in highly volatile markets.

The CFTC staff initiated this process directly following the market break, writing to all futures exchanges and clearing organizations on November 12, 1987, to request that they review existing programs and consider potential enhancements to provide added protection against future periods of volatility. The staff preliminarily identified seven program areas for SRO consideration. Subsequently, the CFTC staff reviewed these recommendations with the Joint Audit Committee, a coordinating group on which all futures exchanges and clearing organizations are represented and formulated additional recommendations for SRO program improvements, which are more fully set forth in the CFTC's post-market staff reports. In brief, the CFTC staff has recommended:

- Expedited implementation of the pay and collect data-sharing system. Culminating efforts that were commenced well before the market break, the futures SROs entered into an agreement on October 21, 1987, for the routine, electronic exchange of pay and collect data with respect to dual and multiple clearing members. The CFTC staff recommended implementing this system on a priority basis.

- Clarification of legal relationships between clearing organizations and banks. To assure the unimpeded flow of variation margin payments between clearing organizations and clearing firms, the CFTC staff recommended that the legal relationships between clearing organizations and clearing banks be clarified to establish the irrevocability of clearing bank confirmations of variation margin payments in the daily settlement process.

- Intra-day margin calls. The CFTC staff recommended increased use of intra-day margin calls on a routine basis to enhance the capacity of the settlement system to function smoothly in times of extreme volatility.

- Integration of market and financial surveillance data. the CFTC staff recommended that the SROs, all of which now have large-trader systems, give priority consideration to enhancement of their computer systems to integrate large-trader data into their financial surveillance systems on an automated basis.

- Intra-month capital compliance systems. The CFTC staff recommended that the SROs review the feasibility of enhancing their audit programs to ensure that their member firms have the capability to monitor and maintain continuous capital compliance.

- <u>Lines of Credit</u>. The CFTC staff recommended that firms be required to provide confirmation to their SROs of the availability of and any conditions to their existing lines of credit and that all firms be required to have adequate local banking relationships.

- <u>Internal controls by member firms over guaranteed floor traders</u>. The CFTC staff encouraged the SROs to review the capacity of their member firms to control their exposure as guarantors of floor traders.

- <u>Review and consider enhancement of margin security against risks of extreme volatility</u>. The CFTC staff recommended that the SROs review the adequacy of margin levels to assure that there is an appropriate cushion against aberrant price spikes and extreme volatility.

o The CFTC has actively monitored the activities of the futures SROs in response to these recommendations and encouraged enhanced coordination among futures exchanges, securities exchanges, and clearing banks involved in the futures and securities settlement processes. As Part II of this summary reflects, the futures SROs have effected many system improvements since the market break which respond to recommendations by the CFTC and have taken steps toward more formal inter-market coordination.

<u>Enhancement of CFTC Data and Surveillance Systems</u>

o Following the market break, the Commission initiated efforts to improve its own data systems to provide more complete and timely data for analysis in the event of continued volatility in the stock market and to enhance its financial surveillance data base.

o <u>Trade identification</u>. Each futures exchange currently maintains a daily record of each trade (trade register) which contains certain identifying information. This information includes the name of the firm clearing the trade and a customer-type indicator (CTI) that shows the type of account for which the trade was executed. The CFTC staff is exploring ways to use this daily record of trades to identify more rapidly and accurately specific types of transactions involving both futures and stock trades, such as index arbitrage.

  - In the short run, consideration is being given to requiring additional CTI codes for stock index futures transactions to identify various types of transactions.

- For the longer term, the Commission is exploring with the exchanges and futures commission merchants (FCMs) changes and additions to account-number information.

o With respect to the CFTC's large-trader reporting system, the Commission staff has implemented a special identification system for trading institutional accounts. The staff is also reviewing the levels at which the positions of large traders in stock index futures are currently reported to the Commission in terms of the proportion of open interest represented by reporting traders and the number of traders being reported.

o <u>Financial surveillance data systems</u>. The Commission staff is also exploring ways in which data currently collected and used by the CFTC and the futures exchanges for market and financial surveillance can be refined to enhance financial surveillance. Specifically, the CFTC staff is developing refinements of the Commission's existing large-trader and clearing member data base to produce aggregate position data for all futures markets. Aggregate position data could be made available to exchanges and other regulators during periods of volatile markets, and, once established, such a system could provide a model for data systems that would reflect all market exposures, including domestic and foreign securities positions.

The CFTC is also exploring development of a centralized computer data base for financial information relating to FCMs. The Commission currently maintains financial information filed by the FCMs in hard copy and computerizes a limited amount of such data. The Commission contemplates development of a computer data base that would be accessible to the SRO financial surveillance staffs as well as to the Commission.

<u>Coordination With Other Regulators</u>

o The CFTC has consulted extensively with the SEC, the Federal Reserve Board, and the Department of the Treasury to address inter-market coordination and contingency planning issues raised by the market break.

<u>International Coordination</u>

o The CFTC is coordinating with foreign regulators in a number of areas, including financial surveillance and information sharing:

- The Securities and Investments Board has proposed that a lead regulator be designated for firms operating in the United States and the United Kingdom. The CFTC has

responded in writing to this proposal following discussions between the CFTC and SRO officials and discussion of the issue by the Joint Audit Committee. The CFTC is also coordinating with the SEC on this matter.

- Information sharing meetings have been held with officials in England, Japan, France, Singapore, Canada, Australia, and Switzerland.

Frontrunning

o At the direction of the CFTC staff, all exchanges that trade stock index futures are reviewing rules relevant to frontrunning. Each exchange has indicated that it would interpret frontrunning as a violation of existing rules relating to just and equitable principles of trade. The CFTC and the futures exchanges are participating in a subgroup of the Intermarket Surveillance Group formed to discuss intermarket frontrunning and other intermarket offenses. The exchanges and the CFTC are also working toward unified standards and interpretations of frontrunning with the securities exchanges and appropriate information-sharing to facilitate surveillance, as well as considering the possibility of a regulation establishing a more specific futures industry standard for the prohibition of intermarket frontrunning activity involving transactions on futures exchanges.

Customer Complaints

o The Commission investigated the number and kinds of customer complaints filed with respect to stock index futures activity during the October market break. The futures exchanges which trade stock index products, the National Futures Association (NFA) and the CFTC's reparation forum, reported a total of only 35 customer complaints relating to stock index trading on futures exchanges during the period October 16-23, 1987.

C. Federal Reserve Board

o In conjunction with the other federal bank regulatory agencies, the FRB conducted interviews with the major banking organizations to determine their lending policies and practices during the market crisis.

o The FRB reviewed the functioning of Fedwire and daylight overdraft caps and is continuing to evaluate the hours of operation of Fedwire, and to assess the costs and benefits of potential changes.

- The FRB has continued contingency planning for market emergencies, including co-ordination with the other regulators.

D. Treasury Department

- Closely monitor financial market developments, promote better communication and coordination among the agencies, and work through the Working Group to correct market weaknesses.

II. Self-Regulatory Organizations and Clearing Agencies SEC Oversight:

A. New York Stock Exchange (NYSE) Specialist System

- The NYSE has reallocated the stocks of J.P. Morgan and Co., Gould, Inc., Neiman-Marcus Group, Carter-Wallace, Inc., and Pansophic Systems, Inc., away from six specialist units.

- There may be additional disciplinary actions resulting from the week of October 19th, and, when appropriate, additional stocks will be taken away from other specialists that fail to meet Exchange standards.

- The SEC has approved revisions to NYSE Rule 103A concerning evaluation of specialist performance. The revised rule establishes, among other things, specific objective standards for measuring specialist performance in the areas of specialists' Designated Order Turnaround (DOT) system order handling and reporting, timely opening of securities, handling of administrative message traffic and market share. *See* Securities Exchange Act Release No. 25681, May 9, 1988. The development of additional specialist performance standards utilizing objective measures is currently being considered.

- The NYSE Board of Directors on April 7 approved a proposal to enhance their procedures for allocating stocks to specialist units. The NYSE expects to submit the proposal to the Commission shortly.

- The SEC has approved an NYSE proposal to increase specialist capital requirements, as an interim measure, to the greater of $1 million from $100,000 or 25% of the trading unit position requirements, which would be increased to three times their current levels. (For example, the current 5,000 share position requirement for common stock has been increased to 15,000 shares.) *See* Securities Exchange Act Release No. 25677, May 6, 1988.

- The NYSE has increased its monitoring of both specialists' capital and positions by requiring that such information be filed with the NYSE by 9:00 a.m. daily.

- The NYSE is exploring the need for specialists to maintain additional lines of credit and other lending arrangements.

- Over the next several weeks, the NYSE staff will meet with a number of its largest member firms to discuss their credit and banking arrangements, including the number and types of banking relationships and efforts to obtain other financing.

- In an effort to attract more capital, the NYSE has revised its Rule 98 to suspend temporarily a prohibition on securities underwriting firms acquiring specialists. The proposed rule change has been filed with the SEC for approval.

Initiatives To Increase Trading Capacity

- In November 1987, the DOT's system's memory was increased and several of the system's data files were separated to allow more efficient processing. Further system enhancements are scheduled to be completed by July 1988 to improve DOT's processing capability even more.

- In January 1988, program changes were completed in the Limit Order System to reduce system bottlenecks discovered during the October market break. A major upgrade of the system with more efficient computers was completed in March 1988, resulting in a 40 percent increase in capacity.

- The NYSE had begun to completely replace its Automated Pricing and Reporting System prior to October 1987, but only a small fraction of the new system was operational by the week of the 19th. An entirely new system was completed on February 22, 1988.

- The ability of the NYSE's Universal Floor Device Controller to store and process data has been increased. To add additional capacity, major portions of data normally routed through the Universal Floor Device Controller are being re-routed to other systems, a process that will be completed by the end of June 1988.

  A problem associated with the Universal Floor Device Controller during the week of October 19th was a backlog of orders directed to printers on the trading floor. On January 18, 1988, the NYSE opened its expanded Blue Room, adding 30 more high speed printers for an increase of 20 percent. Seventeen more high speed printers were added to the trading floor in March 1988. In addition, the NYSE

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currently is working to double the speed of all existing printers.

At the same time, the NYSE also has increased the number of electronic display books on the trading floor by over 85 percent, reducing the overall need for printers. In addition, it has tripled the number of stocks on display books, an increase of over 140 percent since October 19th, so that currently there are approximately 1,251 stocks on 373 display books.

- The capacity of the NYSE's Post Support System to store and process orders has been increased through the use of additional computer power for the system.

- Enhancements in the NYSE's Universal Floor Device Controller and its printers currently underway will reduce the potential for delays in the Exchange's link with the Intermarket Trading System (ITS).

- As of November 1987, the computers running the Consolidated Tape System have been replaced. As a result, the Consolidated Tape System now has the capacity to process efficiently a peak volume in excess of 600 million shares.

- Computer enhancements were made to the As-Of-Status-System on October 24th and 25th, 1987.

- On a broader scale, the NYSE is planning to have the capacity to handle a peak of 600 million shares by June of this year, and it believes that if it were to experience a 600-million-share day now, it would be able to process it with significantly fewer delays than the Exchange experienced last October.

- On Saturday, April 30, 1988, the NYSE conducted a test of its 11 computer systems to determine whether the systems could process adequately 600 million shares in one day. Preliminarily, the NYSE was very satisfied with the test results; the NYSE is currently analyzing the data generated by the test.

- Beyond this, the NYSE is planning to have the capacity by late 1989 to process a billion shares.

- The NYSE recently announced the formation of an Operations Advisory Committee, headed by NYSE President Robert Birnbaum and made up of experts in trading operations from member firms of various sizes. The purpose of the Committee is to evaluate problems encountered during peak processing periods and to recommend synchronized corrective actions that would enhance the entire process.

- o In March the NYSE established a Pension Managers Advisory Committee in order to help make the NYSE more aware of the investment needs of fund managers and help keep the fund managers better informed of the system capabilities of the Exchange now and in the future.

- o Last January, the NYSE formed an Individual Investor Advisory Committee to serve as a liaison between individual shareholders and the NYSE Board to enhance communications between individual investors and the Exchange. Its charter is to advise the Board on policies and programs that affect individual investors in equities, options, futures and fixed income securities.

- o The NYSE is initiating an independent audit of its trading systems by an outside firm every 12 to 18 months to enhance the system's proper operation. As the audits are conducted, the NYSE is going to share the findings with the SEC.

<u>Program Trading</u>

- o The NYSE required, as of May 15, the daily submission of information relevant to all program trading activity engaged in by its members or member organizations either on a proprietary or agency basis.

- o A new procedure is being implemented by the NYSE to enable it to identify accurately all types of trading, including program trading.

<u>Circuit Breakers</u>

- o In early February, the NYSE adopted a procedure and proposed a rule to the SEC to take index arbitrage out of its automated order routing system whenever the Dow Jones Industrial Average moves 50 points up or down from the previous day's close. The NYSE's proposal was approved by the SEC on a six-month pilot basis on April 19, 1988, <u>See</u> Securities Exchange Act Release No. 26699, 53 FR 13371.

  The NYSE is working toward a proposal that could provide for a coordinated all-market circuit breaker in the event of a precipitous market decline. The Exchange is hopeful that agreement on this issue can be reached in the near future.

<u>Frontrunning</u>

- o The NYSE has sent a letter to its members stating that inter-market frontrunning -- or trading futures contracts to profit on knowledge of impending orders in the stock market -- may violate just and equitable principles of

trade, and could be a violation of the Exchange's trading rules. <u>See</u> NYSE Information Memo No. 88-9, April 13, 1988.

In addition, the NYSE plans to provide the futures exchanges with audit-trail information on stock trading that would enable the Chicago futures markets to conduct ongoing surveillance for front-running. <u>See</u> NYSE Information Memo, April 21, 1988.

<u>Environmental Impact Statement</u>

- o The NYSE Chairman Phelan has proposed development of a financial version of an environmental impact statement that can provide guidance, or even an early warning, regarding the potential consequences of new financial instruments, new trading technologies and new forms of risk management.

<u>Communications</u>

- o On January 11th, the heads of several SROs met at the NYSE to discuss a variety of methods to improve communications. Similar meetings involving all equities futures and options exchanges were also held on February 24th, March 24th and May 3rd.

- o The NYSE also is supporting a proposal to include the stock index futures as associate members of the Intermarket Surveillance Group (ISG), which provides access to an integrated database of inter-market surveillance instruments.

  The NYSE is also heading up a sub-group of the ISG to better identify inter-market trading violations and promote information sharing.

  - On April 5th, there was a meeting of all the members of the ISG. The stock index futures contract markets attended that meeting, and the CFTC participated as an observer.

<u>Compared Trades</u>

- o The NYSE is working on (1) a shortened comparison cycle, and (2) an on-line automated Questioned Trade process. The exchange is developing an electronic Floor Derived Comparison (FDC) system to accomplish these objectives. The NYSE plans to implement FDC in three phases during 1988. The NYSE and the American Stock Exchange report that they have been working closely on these projects with the National Securities Clearing Corporation (NSCC), the Securities Industry Automation Committee (SIAC), and others.

The NYSE intends to amend its rules by May 1989 to require its members to resolve all trades by the evening of the day after trade-date.

B. American Stock Exchange (Amex)

Surveillance Technology

- In 1986, the Amex began in 1986 a broad effort to upgrade surveillance technology. These efforts run the spectrum from on-line, intraday market monitoring to post-trade tools for investigations. In the last year, the Amex has implemented:

  - A new StockWatch system to monitor trade-by-trade activity for comparison versus historic trading patterns.

  - An Amex Trade Information Center (ATIC) for more efficient data gathering for *ad hoc* investigations.

  - A NewsAlert system that uses voice synthesis to notify market operations personnel of listed company announcements that may require trading halts.

  - A DowScan system that reads all the Dow stories and captures those that are related to Amex listed equity options for later reference by surveillance analysts.

  - A new capability to monitor electronically trading for Rule 193 ("Chinese Wall") violations by firms engaging in specialist activities.

  - Systems to monitor automatically option trading for front running, mini-manipulation, pegging and capping.

- In 1988 and 1989, the development program will expand to include:

  - An expert system that uses artificial intelligence software to analyze potential insider trading market and manipulation cases and estimate the likelihood that a case will eventually result in charges. This will allow surveillance analysts to handle case loads more accurately and productively.

  - An upgrade of ATIC software and hardware to include a relational database and network access to Intermarket Surveillance Group files. This will reduce the amount of time required to build up case information during investigations.

- An OptionWatch system to duplicate for options the services provided by StockWatch for equities.

Specialist Performance

- The Commission is currently considering an Amex proposal that would require that non-regulatory trading halts, or a reopening following a non-regulatory halt, be approved by a Floor Governor or Exchange Official. Currently, only the approval of a Floor Official or, in some instances, a Floor Governor, is required in such situations. The Amex is also considering making the same change for approval of gap openings beyond specified limits.

- In addition, the Exchange is currently considering a mandatory requirement that all specialists prepare a form indicating the pre-halt condition of the specialist's book and any orders represented in the trading crowd prior to and subsequent to any halt in trading. This form would be submitted for the Floor Official's review prior to any stoppage, resumption of trading for gap openings beyond specified limits so that a speedy analysis could be made of specialist pricing, timing and proprietary trading activity. It could be subsequently used by Exchange staff for surveillance purposes. Currently, the use of such forms by specialists is optional.

- The Amex has examined trading in every security traded on the exchange during the market break period. To date, the Amex's review of specialist performance has resulted in the reallocation of two stocks from two specialist units.

Capital Requirements

- The Amex has thoroughly reviewed the current capital requirements for specialists under Amex Rule 171, and is in the process of detailed analytical work on a proposal to its board to increase specialist capital requirements.

- Based on a review of its system of specialist capital surveillance, the Amex concludes that several changes should be made in routine surveillance procedures as well as in monitoring during periods of market turbulence.

  The Amex is intensifying surveillance through the following action:

  - requiring firms' clearing specialist accounts to provide, on a daily basis, standardized account information for specialists and traders. For dual members this would include account statements, or a summary thereof, for trading activity on other

exchanges where they are members. Standardizing the information received and obtaining it for positions other than the Amex will eliminate reporting gaps that currently impede overall evaluation of specialist financial condition;

- requiring daily information from self-clearing specialists who now are subject to monthly reporting. Because most of these specialists are designated to the NYSE for financial oversight, the Amex will develop a plan for obtaining and sharing information on dual members; and

- closely monitoring the effects of increased capital requirements following their implementation to determine whether higher standards create a need for additional capital to maintain a comfortable cushion over early warning levels;

o During times when closer monitoring becomes necessary, the Amex is considering requiring specialists identified as most susceptible to damage to provide daily position and profit and loss estimates shortly after the close of business. The Amex is also prepared to dispatch examiners to review specialists' books and records, on a daily basis if needed, to obtain information not otherwise available.

<u>Market Operations</u>

o The Amex is working with those specialists who have touch screen execution (AutoPer) terminals located behind them to provide space to relocate the terminals in front.

o In addition, the Amex is in the process of redesigning the AutoPer screen to eliminate the need, in some instances, to use an additional page to complete execution of an order. The redesigned screen will permit specialists to execute orders even more quickly and reduce the possibility of having orders printed and being executed out of sequence.

o Finally, a pilot program is underway with respect to the implementation of an electronic book that will provide smoother integration of AutoPer and booked limit orders.

o A committee composed of representatives of the Amex, NYSE and NSCC has been formed to explore the possibility of shortening the comparison cycle with the intent of increasing the amount of time available to process "don't knows" (DKs) and "questionable trades" (QTs) by one full day. The Amex is also developing systems to allow same-day floor-derived points of sale comparison for equities and options. It is well into the design phase of this system

and plans to implement the first stage in the last quarter of 1988.

- As a result of an extensive review of the events of the week of October 19 from an equity comparison standpoint, several proposed enhancements to the NSCC Equity Comparison System are being considered.

Inter-market Trading System

- The Exchange is examining ways to upgrade order delivery systems to improve the capacity of the Amex's systems to execute all orders, including ITS commitments. The Amex, and other exchanges, are in the process of implementing such upgrades, and believe such developments will permit execution, under reasonably anticipated high volume conditions, incoming ITS commitments in a timely manner.

- The Amex specialists generally have used ITS Plan pre-opening application procedures following both regulatory and imbalance trading halts. The Amex would support an initiative by ITS participants to apply uniform pre-opening procedures following both these trading halt situations.

- The Amex supports defining procedures for communication among the exchanges and identifying an ITS contact person in each market who will be available during market emergencies.

Options

- The Exchange has adopted a policy of delisting selected series of puts and calls within an options class when no open interest exists.

- The Amex is considering the possibility of using its authority in the event of another dramatic market break to introduce new strike prices only at levels immediately surrounding the market price of the underlying stock or index. In such situations, as the market in the particular underlying instrument turns around, new strikes could be introduced to fill in the gaps between those added earlier and current levels. The Amex is carefully examining the possibility of modifying its policy in this manner, and plans to discuss it with the appropriate Exchange committees when its analysis is complete.

- The Exchange has a number of proposals currently awaiting SEC approval which will expand the use of the Amex's automated execution system (AutoEx). These proposals include the use of AutoEx in select equity options on a full-time basis. *See* File Nos. SR-Amex-88-6 and Amex-88-9.

It is the Exchange's intention, upon approval of these proposals, to broaden Registered Options Trade (ROT) participation in a variety of ways, including allowing ROTs to 1) sign on the AutoEx system at any time during the day; 2) choose whether they will participate in either calls, puts or both; and 3) participate on the AutoEx system for more than one option (provided the ROT is able to be considered in the trading crowd for each option).

The Amex is seeking ways in which to improve both the speed and quality of opening rotations.

- The Amex is examining the feasibility of introducing an opening rotation in the Major Market Index that would allow for the opening and free trading of the more actively traded options series in a more timely fashion than afforded by the current system. The more actively traded series are generally the near term months with strikes at or near the money. The proposed rotation would allow for first opening those options which qualify for AutoEx. Immediately upon completing the opening rotation in these strike prices, they would become available for free trading.

- Additionally, the AutoEx system would be turned on simultaneously with free trading. This would allow for all AutoEx qualified orders (currently market orders or executable limit orders of 10 contracts or less) entered via the Amex automated system to receive instantaneous execution.

  The benefits are that more actively traded options would be opened and free traded on a more timely basis. Because of the time reduction, disproportionate changes in opening sale prices and next sale prices should be reduced, and AutoEx would be available sooner than currently possible. If this proposal proves to be more efficient than current methods, the feasibility of using this system floor-wide can be examined.

- The Amex proposes to monitor closely and review option specialists' participation each month, with an increased emphasis on specialists' performance in maintaining tight, liquid markets.

- Despite the difficulties of using traditional performance measures for derivative markets, the Exchange's review of the market break has caused the Amex staff to begin consideration of more formal standards. The Amex believes that such guidelines should be based primarily on quote spread differentials, and that a determination of unsatisfactory performance on this basis should lead quickly

to the imposition of appropriate sanctions, up to and including reallocation.

- The Amex is also considering the feasibility of imposing a modified firm quote policy in options. Under such a policy, option specialists would be expected to disseminate timely quotations markets that reflect actual market conditions with consideration given to supply and demand in the trading crowd. Both of these initiatives must be fully reviewed and adopted by committees and the Exchange Board prior to implementation.

- A special study of the Major Market Index (XMI) specialist and ROT performance for trade date October 20 was undertaken by the Exchange and has been completed.

- The Exchange reviewed and compiled customer complaints and all materials associated with XMI trading, including options journals, cash index values, MMI Futures trading time and sales, component stock data and other relevant documentation. This review involved a number of meetings and a special study regarding volatility in XMI and the Major Market Index generally.

  The Performance Committee determined that a number of put executions -- specifically, those that occurred at a volatility factor exceeding 325 -- were improperly priced, and that, with respect to these executions, the Unit's performance was unsatisfactory. The Committee severely admonished the specialist unit for substandard performance and advised it that any recurrence of inadequate performance in XMI would leave the Committee with no alternative other than to consider strongly reallocation. The Committee instructed the specialist to develop a plan to ensure adequate performance in the future.

- Consistent with the Performance Committee's action, the XMI specialist and member firms representing customer executions that exceeded the volatility factor have been negotiating adjustments. These negotiations are continuing.

- As a result of the October market break, margin requirements for broad-based index options were increased effective November 2, 1987. _See_ Securities Exchange Act Release No. 25081, 52 FR 42751. The Exchange subsequently filed a proposal to increase further the margin on broad-based index options and equity options. _See_ File No. SR-Amex-88-12, noticed in Securities Exchange Act Release No. 25646, May 3, 1988.

- The Exchange believes that margin action dealing with changes in price volatility levels of stocks and indexes

underlying options could be better dealt with if Exchanges were given authority to adjust margin levels above an SEC-approved floor without the necessity of filing for rule changes as is the current practice.

C. <u>National Association of Securities Dealers (NASD)</u>

- o The NASD has responded to problems encountered during the market break by proposing a number of initiatives:
  - raising the penalty for unexcused withdrawals by market makers from the National Association of Securities Dealers Automated Quotation (NASDAQ) system;
  - requiring all NASDAQ/NMS market makers to participate in Small Order Execution System (SOES);
  - providing that SOES executions will continue in an Over the Counter (OTC)/National Market system security when quotes are locked or crossed;
  - eliminating preferencing of market makers in the SOES when a locked or crossed market exists;
  - establishing the Order Confirmation Transaction (OCT) service that will permit firms to access market makers through NASDAQ without voice contact. <u>See</u> Securities Exchange Act Release No. 25263 January 11, 1988, 53 FR 1430 (granting accelerated approval for 90 days.)

- o The NASD states that its hotline, which at present can be used to contact 50 of the largest market makers, remains in place and continues to be part of its routine operational procedures, including apprising market makers whose quotes are locked or crossed that they must take remedial action.

- o The NASD agrees with the Commission's suggestion that the NASD review with broker-dealers the desirability of establishing diverse lending relationships with a number of banks, as well as the feasibility of obtaining more committed lines of credit than currently exist. The NASD will discuss these suggestions with its members.

- o During and after the week of October 19, the NASD expanded the hours of operation of its Trade Acceptance and Reconciliation Service (TARS) which allowed firms quickly to reduce the number of uncompared transactions. <u>See</u> Securities Exchange Act Release No. 25088, November 3, 1987, 52 FR 43141.

- o The NASD closely monitored the adequacy of capital of its

member firms during the period of the market crisis to assure their continuing liquidity.

- The NASD has in place a substantial customer complaint investigation program and will investigate and take disciplinary action where appropriate in response to these complaints.

- The NASD agrees with the SEC's suggestion that the SROs accelerate their efforts to generate same-day compared trades, thereby enabling members to know their positions and market exposure before trading commences the next day. The NASD plans an Automatic Confirmation Transaction System that, together with the SOES, Order Confirmation Transaction service, and the on-line TARS, would provide an almost total same-day comparison capability for the NASDAQ market. The NASD also filed, and the SEC approved, a rule change that requires all NASD members to use TARS. See Securities Exchange Act Release No. 25595, April 18, 1988, 53 FR 93370.

- The SEC has granted the NASD the authority to halt OTC trading of NYSE-listed and Amex-listed securities when an important news announcement is made, thus matching the authority of the NYSE and the Amex. Current rules permit the NASD to halt only the dissemination of stock quotations pending a news announcement.

D. Regional Exchanges

Contingency Planning and Information Sharing

- The Pacific Stock Exchange ("PSE") has established a Contingency Planning Task force. The Task Force's primary objective is to improve both internal and external communications when a market disruption occurs. This includes formalizing internal procedures to communicate effectively within the staff and with other markets, the SEC, members and public customers, the news media and the general public. The PSE also sponsored a meeting with the other regional markets on March 28 to discuss, among other things, specialist capital requirements, inter-market trading systems performance, communication linkages and contingency planning for market emergencies.

Specialist Performance

- Four regional stock exchanges, the Cincinnati Stock Exchange ("CSE"), Midwest Stock Exchange ("MSE"), Philadelphia Stock Exchange ("Phlx"), and PSE, have examined individual specialist performance during the market break and have not identified any questionable actions that would require disciplinary actions or reallocation proceedings.

These exchanges note that they have not received any formal complaints regarding specialist performance during the market break.

- The Boston Stock Exchange ("BSE") is currently investigating one matter that relates indirectly to the market break.

- Individually, the MSE supports the development of objective, relative standards to evaluate specialists and will be filing with the Commission, in the near future, a new set of criteria for specialist evaluation based on a relative standard of performance.

- The PSE is currently examining the market making obligations of regional specialists and has agreed to explore this issue with each of the other regional markets.

Improved Systems

- The BSE does not currently have an automated routing and execution system. The BSE, however, is in the process of developing the BEACON system -- Boston Exchange Automated Communications and Order-Routing Network. The BSE expects that when BEACON is in place it will be able to process at least 10 million shares per day, which is approximately three times the BSE's current average daily volume. The BSE expects the BEACON to be fully operational by year end.

- The CSE has been in the process of implementing major hardware and software improvements to its trading system to accommodate volume surges and higher volume levels. The CSE states that the implementation of these enhancements is progressing expeditiously at this time and should increase capacity by approximately 50%. The CSE believes these enhancements will enable it to process volume such as occurred during the week of October 19 without any problem or delay.

- The MSE has increased the capacity of its automated order execution system (MAX) system from 36,000 trades per day to 54,000 trades, a 50% increase, since the market break. According to the MSE, this increase means that, assuming a normal mix of orders, its system could process, with no delays or problems, the volume of orders experienced during the market break. Additional changes are being implemented through June 30, 1988, that will increase capacity further to 60,000 trades. The MSE also has developed a "performance management measurement methodology" to improve MSE capacity forecasting and obtain increased capacity with their

current systems on an as needed basis. Both staff and software tools have been added to implement this program throughout 1988.

- o The Phlx estimates the capacity of its automated order execution system (PACE) has been increased from approximately 12,500 orders per day to 17,000-17,500 orders per day since the market break. The Phlx states that further enhancements that are expected to be in place by June 1988 should increase system capacity to over 20,000 orders per day without queuing. The Phlx also has accelerated its plans to replace its current computer system for PACE by year end. The Phlx estimates this change will increase capacity to 40,000 orders per day and will allow the Phlx to handle its anticipated share of volume on an 800 million to 1 billion share day. Further, when its new computer system is in place the Phlx believes it will be able to increase capacity to accommodate volume surges with less than 24 hour turnaround time. The Phlx conducted a series of tests on PACE's capacity after these improvements were made.

- o The Phlx has also made modifications that permit automatic reporting to continue when the automatic execution feature of the system is disengaged. This will allow the Phlx to switch to manual execution of orders, which was done on October 20-22, without encountering the reporting delays that occurred at that time.

- o The Phlx has also increased the capacity of its CENTRAMART System, which processes incoming quotation and transaction information, by approximately 20% since the market break. By year-end, computer enhancements should increase CENTRAMART capacity to the 800 million to 1 billion share level and allow additional capacity to be added quickly when needed.

- o The PSE states that it has doubled the capacity of its automated execution system (SCOREX) since the market break to 50,000 messages per day. "Messages" would include incoming orders, order status report requests, and order cancellations. On October 19 and 20 SCOREX received 47,000 messages per day. The PSE achieved this increased capacity primarily by adding two additional data communications lines between the San Francisco and Los Angeles trading floors, which expanded capacity of this component of the system by 50%. The PSE believes that with this increased capacity it would now be able to handle the volume levels experienced during the October market break without problems. The PSE notes that further enhancements still underway, such as the elimination of unnecessary trade and quote data received from SIAC and the possible addition of two communication

processors, should provide reserve capacity to accommodate even higher volume levels. Finally, the PSE expects that its on-going computer replacement project, to be completed within the next two years, will increase capacity to 100,000 messages per day. On March 5, 1988, the PSE conducted a test of SCOREX capacity. The PSE has hired an independent consultant to examine and verify the test results.

<u>Contingency Plans for Dealing with Unusual Volume</u>

- The BSE has stated that once it has implemented the BEACON system, it also will create a back-up system. As to training, floor operations personnel currently trained to supplement floor brokerage functions will also be trained in the BEACON system. The BSE non-floor personnel also are trained in a variety of clerical floor functions.

- The CSE has upgraded its staff with more qualified employees to improve overall competence. The CSE also notes it is continually reviewing and upgrading the quality of its back-up systems.

- In 1988, the MSE intends to improve back-up capabilities including a communications link between the MSE and large member firms and service vendors. Further back-up capabilities are being planned for future years. The MSE is also developing a contingency capacity fall back plan for 1988 that will identify any non-essential MAX activity that could be eliminated during unusual volume surges to accommodate more volume.

- The MSE also has developed a program to train upstairs personnel to supplement floor staff in "volume breakout situations." The staff will be trained in Trade Input and MAX customer interface functions. The MSE procedures provide for the additional staff to be on the trading floor within 15 minutes when needed.

- The Phlx believes that it currently has adequate back-up personnel at all levels including data processing, operations and marketing/customer communications. In addition, the Phlx notes that the PACE system will have two important back-up systems when the computer changes noted above are implemented by year end. First, all computer functions will be performed in duplicate and cross-checked so that any system breakdown will be detected immediately. Second, because the new computers are modular, additional temporary capacity can be added within a day.

- The PSE is refining its contingency plans to re-route orders manually to floor booths if its other enhancements prove

insufficient at a particular time. The PSE also has formed a working group to plan the training of staff to meet the requirements of market disaster, such as providing relief for regular staff. A list of former options staff who have assumed other responsibilities at the exchange is regularly updated and these employees will be receiving refresher courses. Other staff will be trained in equities floor operations and receive regular training updates to supplement the equity floors when needed.

<u>Improved Communications with Retail Firms</u>

- The BSE intends to notify the BEACON users of delays and other system problems through administrative messages, supplemented by direct contact with member firms. In addition, the BSE has recently appointed a new officer who, among other things, will be responsible for improving communications with member firms.

- The CSE has made certain improvements, including a direct line to retail firms, to expedite communication concerning system problems and delays.

- The MSE recently has implemented procedures to shorten the amount of time it takes to notify retial firms of problems or changes to MAX by both administrative message and telephone. Under the procedures, the MSE will first notify firms of problems, delays or changes to MAX through administrative message and will follow-up with phone calls to the firms.

- The Phlx has developed procedures to ensure there is adequate notice to PACE users and Phlx marketing personnel of any changes to system execution parameters.

- The PSE currently is upgrading and formulating its current procedures for contacting retail firms when system operational problems or delays occur. The PSE will also be notifying SCOREX users that during periods of extremely heavy volume the automatic execution feature may be disengaged to enable additional "throughput". Both firms and the SEC would be notified prior to any actual disengagement of the automatic execution features.

<u>Improved Coordination between Exchanges Concerning Problems with Small Order Systems</u>

- The CSE states it is committed to timely communication, by both telephone and administrative message, with other markets on problems with CSE systems.

- The MSE has implemented the procedures necessary to use the ITS broadcast administrative message capability at the SIAC to notify other Exchanges of problems or shut-down of small order systems, as agreed upon with the other exchanges.

- The PSE is contacting other exchanges to explore the development of better communications among the markets during a market break. The PSE believes better SRO communications and coordination of activities for the benefit of the market as a whole would be particularly beneficial concerning the exchanges' automatic execution systems.

<u>Intermarket Trading System Improvements</u>

- The exchanges unanimously agreed that developing pre-opening procedures that would apply after order imbalance halts was of great importance to the efficient operation of ITS. Several exchanges noted that they would initiate the proposal at the next meeting of ITS representatives.

- At the last ITS Operating Committee meeting in early February, the communication issue was discussed and all exchanges agreed to designate the operating committee member as the contact person for each exchange. The contact person in turn was to designate a back-up person and communicate the information to the other participants. Furthermore, each participant is to provide current names and phone numbers for key members familiar with ITS operation and policy.

- The CSE further recommended that the ITS Operating Committee identify certain situations that adversely impact the effective operation of ITS and develop procedures for decision-making in such situations.

<u>Specialist Capital</u>

- The Phlx, MSE and PSE are currently reviewing the adequacy of their respective specialists' capital.

- The BSE, effective December 31, 1987, increased specialists' equity capital requirements from $80,000 to $100,000 and effective June 30, 1988, will increase the requirements to $125,000.

- The MSE is studying requiring specialists to file financial reports on a more timely basis (from quarterly to monthly for self-clearing specialists and from annually to quarterly for introducing specialists). The MSE is developing a mechanism to review specialists' inventory positions on an intra-day basis, rather than on an overnight basis only.

- The PSE believes that its existing procedures worked effectively during the market break. The PSE is reviewing specialist capital surveillance systems to determine if they capture in a timely manner all the desired information for adequate monitoring. Based on the current status of the review, it appears that some modifications to the current daily reports and monitoring process will be implemented.

- The MSE and the Midwest Clearing Corporation (MCC) are reviewing the possibility of imposing higher capital requirements on self-clearing specialists firms.

- The PSE will consider whether to require higher capital for specialists that do not have bank credit lines.

- The CSE states that requiring lines of credit or higher capital requirements for dealers without such accommodations is an issue that needs further review. The CSE will soon file a proposed rule change that will establish an optional minimum net liquidating equity requirement for those dealers who do no customer business and maintain letters of guarantee with CSE clearing members.

<u>Options</u>

- The Phlx and other OPRA participants have worked and will continue to work with vendors to address current capacity problems, plan for future capacity expansion, increase message capacity, and devise contingency plans for potential future problems.

- The Phlx received SEC approval to implement its options order routing system, the Automatic Options Market System, as a 90-day pilot program, on March 31, 1988. <u>See</u> Securities Exchange Act Release No. 25540, 53 FR 11390.

- The PSE indicated that present margin levels, for index and equity options, may not be adequate as permanent standards and expressed its willingness to join other exchanges and the SEC in further reviewing margin levels. The PSE submitted a proposal to increase index and equity option margin requirements that was noticed in Securities Exchange Act Release No. 25666 May 5, 1988.

- The Phlx notes that it currently is working with the other options exchanges to value the adequacy of stock and index option margin levels. The Phlx concludes from a preliminary review of trading data that current margin levels are adequate to ensure credit worthiness and performance of obligations even during periods of increased market

volatility on the scale of last October. According to the Phlx, serious consideration should be given, however, to whether current margin levels are adequate to avoid excess speculation or curb excess market volatility. The PSE submitted a proposal to increase index and equity option margin requirements that was noticed in Securities Exchange Act Release No. 25679 May 9, 1988.

E. Chicago Board Options Exchange (CBOE)

Circuit Breakers

- The CBOE is considering policies to limit the addition of new strike prices for both stock and index options during periods of extreme volatility. In particular, the CBOE would limit new series to those necessary to bracket the prevailing index value or underlying stock price and to a limited number of new series farther in- or out-of-the-money. The CBOE believes that further study is required to define the scale of market volatility that would trigger implementation of this policy and to determine appropriate emergency strike price increments.

Systems

- The CBOE is evaluating methods to ensure high levels of market maker participation in its automated execution system (RAES) during volatile periods. Efforts are focused on reducing disincentives to continued participation in RAES and establishing sanctions for leaving the system. To that end, the CBOE has submitted a proposed rule change that will give the CBOE authority to require market maker participation in RAES in designated equity options classes and in the Standard & Poor's 500 index option (SPX) through the next following expiration. See Securities Exchange Act Release Nos. 25620 April 27, 1988 and 25621 April 27, 1988.

- The CBOE has recently submitted a proposed rule change to clarify that market maker performance includes participation in and support for Exchange-sponsored automated programs, including RAES and Auto Quote. See Securities Exchange Act Release No. 25570 April 11, 1988.

- The CBOE has communicated with vendors that experienced capacity problems during the market break and has advised them to delete less active option series as necessary.

- The CBOE has been reviewing its opening rotation procedures since last October. Since December, the Standard and Poor's 100 index options (OEX) opening has been informally modified by dividing OEX series into three groups that are opened separately and simultaneously. See Securities Exchange Act

Release No. 25627 April 29, 1988. According to the CBOE, these procedures, combined with recent low volume and volatility levels, have resulted in opening rotations of not longer than 10 to 15 minutes. In February, the CBOE Board of Directors approved in principle a plan to divide OEX into seven zones, six of which would be opened simultaneously with one or more lead market makers charged with establishing opening prices and facilitating imbalances. The CBOE is working with Commission staff to develop an exchange rule filing that would implement this measure.

- The CBOE also received approval from the SEC of a proposed rule change providing that trading may be halted and the opening rotation in index options delayed when unusual market conditions exist. <u>See</u> Securities Exchange Act Release No. 25600 April 19, 1988, 53 FR 13458.

- The CBOE also has plans to test hand-held radio communication terminals that would enable trade data input and comparison to be accomplished at the time of the trade. The current system compares trades in the evening after trading closes.

<u>Market Maker Performance</u>

o The CBOE's Market Performance Committee is examining the adequacy of the CBOE's rules relating to market obligations. In particular, the CBOE is examining its policies respecting modification of these rules during unusual market conditions. The CBOE is focusing on determining which rules should be waived during unusual market conditions and whether back-up rules should be imposed to ensure that orders are handled fairly and efficiently during market stress periods.

o A special panel of CBOE members and persons associated with CBOE members firms has reviewed October 20, 1987 OEX pricing. The panel report characterized options pricing on the morning of the 20th as "extreme but understandable in light of the chaos and extreme volatility then prevailing in all markets." The CBOE notes that as a "goodwill gesture" it will make refunds to member firms based on the difference between the premiums actually paid by public customers for certain November OEX options during the market break and the prices they would have paid if premiums had been based on an implied volatility of 300. The total amount to be paid (approximately $1.2 million) will be recovered by assessing a voluntary fee of $.01 per contract on market makers' future OEX transactions. As a result of a number of customer and member firm complaints, the CBOE regulatory staff also is reviewing market maker performance during the

market break, with special emphasis on October 30. The CBOE expects to complete this review in the near future.

Margin Levels

- o The CBOE has been reviewing the adequacy of index and equity option margin levels and suitability standards in consultation with major retail firms, other options markets, and the Commission. At its February meeting, the CBOE Board of Directors decided to retain the current "Premium plus" margin methodology and to increase the "add-on" component of such margin calculation from 10 to 15 percent for index options and from 15 to 20 percent for equity options. The minimum margin for out-of-the-money options (both index and equity) would be increased to 10 percent. The CBOE proposes to conduct more frequent monitoring of the adequacy of these margin levels. The CBOE is also considering imposing a minimum equity requirement for accounts approved to write naked short options, straddles, and combinations. These minimums could be established as part of additional suitability guidelines, which currently are under review by the CBOE and other options exchanges. The CBOE filed proposals to increase margin requirements for index and equity options that were noticed in Securities Exchange Act Release Nos. 25552 April 7, 1988, and 25600 April 21, 1988.

F. Options Price Reporting Authority

- o Within two or three days of the market break most vendors had expanded their files sufficiently to make their systems current with each exchange as to all existing options series.

- o Representatives of the Options Price Reporting Authority (OPRA) Technical Committee immediately began to design system modifications that will allow the announcement of new series through computer formatted messages. Such modifications will in turn enable vendors to implement computer programs to automatically add these new series to their systems, eliminating the time-consuming and error-prone process of transcribing the administrative messages that is currently used. The Committee reached agreement on the message type at a meeting on December 9th, and implementation of the system modifications is expected to be completed this summer.

- o An arrangement has been decided upon whereby OPRA will regularly update the vendor/user committee of the

Information Industry Association on volume and capacity projections to assist the vendor community in its efforts to have facilities keep pace with growth and provide for unexpected spikes in activity.

G. Clearing Agencies

- The National Securities Clearing Corporation (NSCC), Depository Trust Company (DTC) and the Options Clearing Corporation (OCC) support the reconvening of the Monitoring Coordination Group (MCG) for purposes recommended in the SEC Report. The NSCC further has suggested, among other things, that: (1) each participant provide to the Commission in advance of the first meeting a list of areas where the events of October 1987 might have shown improvement as a result of better inter-clearing agency and Designated Examining Authority (DEA) cooperation; (2) each participant provide the SEC with an emergency call list that it will update; and (3) the MCG be chartered, provided an administrator, required to meet at least quarterly and provide annual reports to the SEC. The MCG met at the SEC on April 26, 1988, and agreed to meet again in Chicago on May 25, 1988.

- The NSCC has analyzed daily marks-to-the-market of guaranteed trades prior to settlement in connection with its earlier trade guarantee. The NSCC believes that daily marks would pose financial difficulties for NSCC members, because NSCC members would be required to fund those marks themselves for customers that customarily are not required to pay for securities until delivery under "delivery versus payment" arrangements. The NSCC is enhancing its ability to monitor and collect marks by establishing daily computerized reporting of parameter breaks that will be available within two to three months. If a parameter is crossed the NSCC will collect an immediate mark from the member through an increased clearing fund deposit.

  The NSCC and DTC indicate that the idea of cross-liens on joint assets of clearing agencies is worth exploring further. The NSCC suggested bringing the matter before the MCG, and the DTC advised consultations with bankruptcy experts on possible legal ramifications. The OCC intends to study the concept of cross-liens as part of its Special Study of the OCC's systems.

- As a general matter, the OCC has undertaken a special study of its systems, which will include eight broad areas for review, including those identified in the SEC Staff's Report. The objective of the OCC's study is to identify any structural weaknesses or areas that can be improved. The OCC's margin committee has commissioned a sub-committee,

including margin committee members and industry representatives, which will complete the study over the next three months.

- As part of the special study noted above, the OCC will address, among other things, the failure of H. B. Shaine and Company. While the OCC believes its margin and concentration monitoring systems worked well during the October market break, it also believes further examination is warranted, particularly where concentrations exist in the form of uncovered short positions and directly affect the financial strength of a member.

- The OCC has been considering increasing its net capital requirements and will analyze the costs and benefits of such increases as part of its study. Although the OCC believes that strengthening its capital requirements could provide significant risk reduction benefits, the OCC notes that currently its monitoring system recognizes an OCC member's net capital as a limiting factor in the amount of risk a member can pose to the OCC.

- The OCC has improved the process by which intra-day variation margin calls are issued. System enhancements have shortened the time needed to issue calls from an original 30-45 minutes to a maximum of 15 minutes. The OCC has also shortened the time for delivery of debit instructions to clearing banks. The OCC also is investigating the possibility of automating the transmittal of call instructions to clearing banks, which, if effected, would further reduce the time needed to issue calls.

- The OCC believes that its monitoring system worked extremely well during the market break. The OCC, however, intends to review its monitoring system as part of its study. The OCC also believes that improvements should be made in the sharing of information among the OCC and commodities clearing organizations. Currently, the OCC is negotiating an agreement whereby the OCC would join commodities clearing organizations in a centralized system that would collect and disseminate pay and collect information concerning firms that belong to multiple clearing organizations.

- The OCC agrees that improvements should be made in the options money settlement process and recently has discussed this subject with several OCC clearing banks. The OCC, among other things, has: (1) begun investigating whether banks can be given earlier notice of settlement instructions; (2) completed startup of providing facsimile notification of settlement instructions with one clearing bank; and (3) undertaken an examination of banking and legal issues concerning the OCC's ability to make timely payment

to members in the event of default or delay by other members, including examination of the OCC's use of its clearing funds and bank lines of credit.

- The OCC supports expanded use of its pledge program and believes greater use of that program could improve liquidity. The OCC notes, however, that it is in the process of requesting the Federal Reserve Board to consider expansion of current regulations concerning loan values of options positions. The OCC also states that it would be willing to explore with the DTC whether combined reports covering options and securities positions could be provided to banking institutions.

<u>CFTC Oversight</u>:

<u>Chicago Mercantile Exchange (CME)</u>

<u>Chicago Board of Trade (CBT)</u>

<u>New York Futures Exchange (NYFE)</u>

<u>Kansas City Board of Trade (KCBT)</u>

<u>Clearing Agencies</u>

<u>Actions by Exchanges and Clearing Agencies--Financial Integrity of Futures Markets</u>

- Since October 19, 1987, the CFTC has monitored the actions of futures exchanges in response to its post market break recommendations. The actions summarized below, which include actions responsive to the CFTC's recommendations as well as independent actions of the SROs, should enhance the financial security of the futures markets, particularly in periods of high volatility, and advance related objectives, such as increasing the efficiency of and coordination among clearing and settlement facilities.

- <u>Margin pay and collect data-sharing system</u>. In accordance with previous CFTC staff recommendations, as of October 21, 1987, all futures exchanges and clearing organizations had entered into a formal agreement for the routine, electronic exchange of margin pay and collect data with respect to dual and multiple clearing members. The system is now operational for 90 percent of futures market volume. Planned enhancements include securities options premium data from the OCC, securities data from the NSCC, and surplus margin data.

- <u>Clarification of contractual relationships between clearing organizations and clearing banks</u>. Meetings have been held

among the interested parties and regulators. The Chicago Mercantile Exchange (CME) Clearing House, the Chicago Board of Trade Clearing Corporation (BOTCC) and the OCC are currently reviewing draft agreements designed to afford additional clarity and standardization in this area.

- <u>Measures to increase, as appropriate, the security afforded by the margin system against aberrant price spikes and extreme volatility</u>. In accordance with the CFTC recommendations to review margins, CME margins on the Standard & Poor's 500 futures contract have been increased to $19,000 speculative initial margin ($10,000 maintenance margin and initial hedge margin). The CME also has established a policy of resetting its initial speculative margins for stock index futures to approximately 15 percent of the value of the contract on a quarterly basis. Chicago Board of Trade (CBT) margins on the Major Market Index (MMI) futures contract have also been increased, to $15,000 initial speculative margin ($10,000 for maintenance margin and for hedge positions).

  - The CME Clearing House has taken a number of measures to enhance its security and liquidity. The Clearing House is in the process of acquiring a $250 million line of credit to be used in the event of a clearing firm default. The CME has also adopted a rule change to increase clearing members' security deposits (which are standing security in addition to margin deposits). The rule is designed to increase the available pool of security deposits from $4.5 million to $42 million. The CME also has a common-bond system that provides for the allocation among its clearing members of any loss to the Clearing House caused by a default. The aggregate capital of all Exchange firms is approximately $17 billion.

    The CME has also adopted rules requiring the parent company of a CME clearing member to guarantee losses on non-customer positions carried by such clearing member.

  - The CME has proposed a rule change to impose additional financial requirements on clearing member firms maintaining 16 or more branch offices or a combination of 32 or more branch offices and guaranteed introducing brokers. As of May 6, 1988, each CME member firm is required to have at least two memberships in each CME division, or a total of at least six memberships.

  - The CME has submitted a rule proposal designed to establish a margin system for option positions that more effectively identifies positions that carry

greater risk and should, therefore, incur higher margins. This new option margin system, which was submitted to the Commission in early February, is currently under review. The BOTCC has also taken action with regard to option margins, increasing the amount of margin collected for deep out-of-the-money options.

- Standardized margin deposits. In January 1988 the CME conformed instruments considered acceptable as margin with other major U.S. clearing organizations by accepting U.S. Treasury notes and bonds in addition to Treasury bills for margin deposits. This should reduce the possibility of financial gridlock by expanding what is acceptable as margin.

- Increased use of intra-day margin calls. The CME has adopted a rule amendment to facilitate implementation of a new policy of its Board of Governors to make intra-day margin calls on a daily basis when a specified dollar threshold is crossed and to pay out gains as well as collect payments for losses on an intra-day basis. In March 1988, the CME began making routine intra-day calls for settlement variation. The CME procedures for intra-day collection and payment of variation margin now provide for issuance of intra-day calls for settlement variation to any clearing member owing more than $500,000 and for intra-day payments of up to 80 percent of gains when $1 million or more is owed a clearing member.

  - The CME and BOTCC have now coordinated intra-day pay and collect procedures. The CME is holding discussions with the OCC in order to further standardize procedures.

  - The BOTCC, which had a pre-existing policy of making routine intra-day margin calls based on the open interest at the previous day's close, adopted additional margin collection procedures following the October market events to enhance its margin collection process. Under these new procedures, the previous evening's trades and all trades submitted to the BOTCC by approximately 1:30 p.m. each day are matched, and appropriate variation margins are collected by 2:30 p.m. each day on all open positions as of 2:00 p.m. In addition, the BOTCC established procedures to ensure that afternoon variation margin payments are paid to a clearing member only if the clearing member's required margins, based on intra-day positions, are sufficient to cover the newly calculated risk of those positions. These rules have helped to make it easier to handle

high volumes of margin flows on volatile days since October.

- o <u>Enhanced clearing and settlement bank financial data</u>. The CME has organized a roundtable discussion forum to facilitate better coordination, information-sharing, and contingency planning among participants in clearing settlement processes. Members include representatives of the BOTCC, OCC, Federal Reserve Bank of Chicago, CFTC, SEC, the four clearing banks used by the BOTCC and the CME Clearing House, NSCC, the DTC and New York settlement banks. Two meetings have been held thus far, and additional meetings are planned.

  The CME also hosted a meeting on Friday, March 25, 1988, for financial surveillance staff representing the CBT, BOTCC, the NASD, NFA, NSCC, the International Securities Clearing Corp., the CBOE, Amex, OCC, KCBT, and the NYSE.

  Among other things, participants reviewed what additional information should be shared routinely and during emergencies and discussed the CME's existing audit plan for emergency situations. The NYSE hosted the next meeting of this group.

- o <u>Integration of market and financial surveillance data</u>. The CFTC staff recommended that futures SROs, all of which now have large-trader reporting systems, give priority consideration to enhancing their computer systems to integrate large-trader data into their financial surveillance systems on an automated basis. In response to these recommendations, a number of SROs stated that they either had such systems or would consider program enhancements to do so. For example, the BOTCC reported that it currently has such a system and the CME Clearing House has since augmented its risk management procedures to refine it surveillance data.

- o <u>Clearing member capital</u>. The CME has stated that it intends to enhance the security of its Clearing House by establishing additional minimum capital prerequisites for membership in the CME Clearing House.

- o <u>Trading capacity</u>. Most futures markets appear to be capable of clearing twice the number of transactions that they currently clear. For example, as a result of recent enhancements to their computer capability to meet the Commission's audit trail requirements, the Chicago exchanges (CME and CBT) have clearance systems capable of handling as much as two and one-half times the current number of transactions. The exchanges monitor the volume of transactions throughout the day, and if there are

indications of heavier-than-usual volume, emergency procedures can be put into effect. These procedures are generally designed to ensure that clearing firms submit trade data to the clearing organization more quickly throughout the day to process the increased volume on a timely basis. Longer processing hours by the exchanges and the clearing firms may also be required in such circumstances.

Most New York futures exchanges also have the capacity to handle above-average volume.

The largest New York exchange, in terms of volume, the New York Mercantile Exchange (NYMEX), has experienced significant growth over the last few years, almost doubling its volume on a year-to-year basis. The NYMEX average volume is approximately 130,000 contracts per day so far this year. The exchange has previously handled 300,000 contracts in a single day and is working towards being able to accommodate as many as 1 million contracts per day. NYMEX also plans to implement an on-line system later this year which will allow brokers to verify and correct the details of trades during the day.

The Commodity Exchange, Inc. (COMEX) is in the process of implementing a new clearing system which, when implemented, should increase its ability to handle high volume.

In a continuing effort to further improve the processing of orders at the exchange level, the CBT has funded and is actively working to implement an automated order entry system that would permit orders to be entered electronically from terminals at member firms and quotation vendors. The CBT expects to introduce the system next year.

- Circuit Breakers. On October 19, 1987, there were no price limits in effect for any actively traded stock index futures contract. By October 23, however, the CME, NYFE, and KCBT, by emergency actions, had put into effect price fluctuation limits for their actively traded stock index contracts. The fourth exchange with stock index futures trading activity, the CBT, did not implement limits on an emergency basis. Subsequently, the CFTC approved permanent limits for the CBT's, CME's, and KCBT's actively traded stock index contracts. More recently, both the CME and CBT proposed further rule amendments that were approved by the Commission in February 1988. (The emergency action taken by NYFE in mid-October regarding price limits expired in January, and no permanent rules have been implemented to replace those limits for the NYSE Composite futures contract.)

On March 29, 1988, the CFTC approved CME rules establishing opening range price limits in the Standard & Poor's futures contract. Specifically, the rule provides that there shall be no trading during the opening range of 10 minutes at a price more than 5.00 index points above or below the previous day's settlement price. In addition, the rules provide for a two-minute trading halt under certain circumstances.

The CFTC also approved the CME rules to provide for a trading halt in options on the Standard & Poor's 500 futures contract when the Standard & Poor's 500 futures contract is limit bid or offer at the opening range price limit; or trading in the futures contract has been halted as set forth above.

o <u>Trade Practice Review</u>. The CME has participated in various ISG matters over the last three years. Recently, there have been three special meetings at which the focus has been on inter-market abuses, including frontrunning, between the futures and security exchanges. These discussions are ongoing to enhance inter-market surveillance efforts.

- The CME recently indicated expressly that its existing rules would prohibit a member from frontrunning a customer's securities or options order in futures or option equity index contracts. On May 4, 1988, the CME Board reviewed a draft of this interpretation in written form, and intends to solicit comment thereon from its members shortly.

- Inter-market meetings also have been held to improve coordination and communications among the various related exchanges in the area of trading and market information. The first such meeting occurred on Wednesday, February 24, 1988, at the NYSE; the second one took place at the CBOE on Thursday, March 25, 1988; and the third occurred on Tuesday, May 3, 1988, at the Pacific Stock Exchange. The purpose of these meetings is to:

  -- Enhance the type of information that the NYSE disseminates regarding the percentage of stocks open, those in which trading has been halted or delayed, bid/ask indications, etc.

  -- Establish an inter-exchange hotline linking the various trading floors and board rooms for the exchange of non-standard information;

  -- Identify what other types of information should be exchanged among the various parties; and

-- Improve and standardize the manner in which financial data is displayed.

- The entities represented at these meetings include the Amex, CBOE, CBT, MSE, PSE, Phlx, NASD, KCBT, NYSE and the CME.

APPENDIX F

Working Group on Financial Markets

Participants

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U.S. GOVERNMENT PRINTING OFFICE : 1988 O - 213-632